

JANUARY 1925 ~ No 228

Monthly

A Reference for Buyers

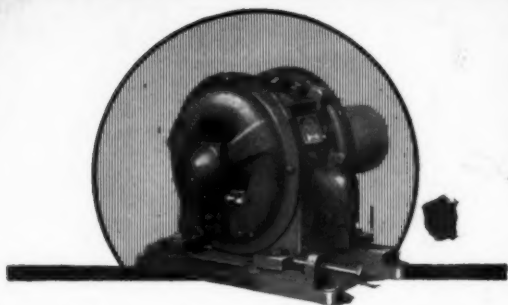
Used Everywhere in the United States and to
Dealers in American Machinery Abroad

Published by

A.H.HITCHCOCK

1220-1235 Cordon Building
Chicago

FOR INDEXES SEE LAST PAGES



Ready for work—anywhere—any time

With Reliance Motors as the driving power for your machines you are assured of space economy and a machine arrangement to suit your manufacturing process.

Machines can be placed wherever you can run a wire. Motors can be on the machines, the floor, wall or ceiling. Each machine is ready for work at the throw of a switch.

Well insulated stators, good bearings and an improved rotor construction are features that help keep Reliance Induction Motors on the job ready for work—anywhere and at any time.

Bulletin 5018 gives detailed evidence

Reliance Electric & Engineering Co.

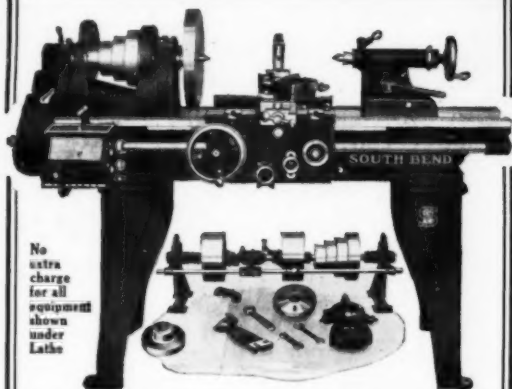
1050 Ivanhoe Road, Cleveland, Ohio

Branches:

Boston New York Philadelphia Pittsburgh Chicago Detroit Cincinnati Birmingham, Ala.

We specialize in motors sizes $\frac{1}{2}$ to 200 h. p. constant and adjustable speed D. C.; squirrel cage and slip ring A. C.

Type **A.A.** RELIANCE Induction Motors



No
extra
charge
for all
equipment
shown
under
Lathe

13-in.x5-ft. Quick Change Gear **\$354** Complete. Easy
South Bend Screw Cutting Lathe Terms if Desired.

32 Major Improvements

In This New SOUTH BEND LATHE

The new South Bend Lathes embody 32 major improvements made in the last 2 years. For accuracy and efficiency, they are unsurpassed. Used by 2 largest steel plants, 8 largest auto factories, 5 largest railroad shops, largest oil company, by U. S. Government, and in 64 foreign countries.

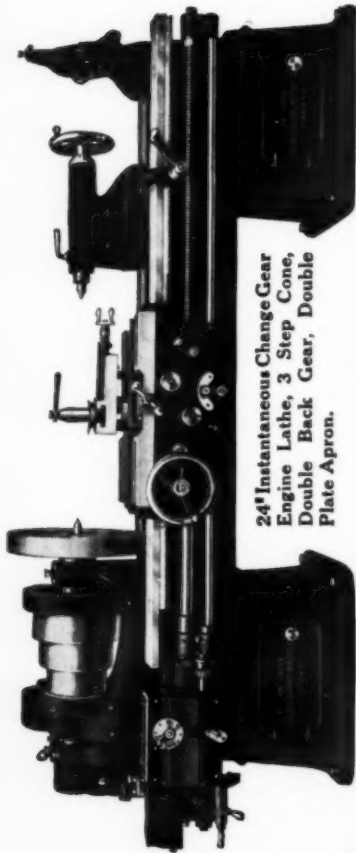
Free Catalog Shows 96 Styles in All Sizes

We ship any Lathe you choose on 30 days' trial, and on easy payments, and back every Lathe with our unqualified guarantee. Send for Catalog today.

South Bend Lathe Works

ESTABLISHED 1906

321 E. Madison St., South Bend, Ind., U.S.A.

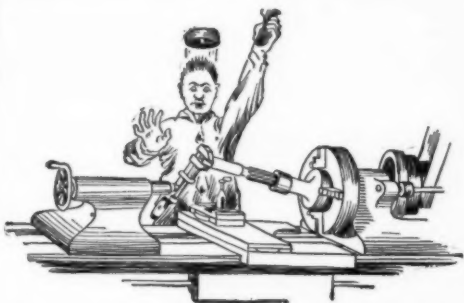


**24" Instantaneous Change Gear
Engine Lathe, 3 Step Cone,
Double Back Gear, Double
Plate Apron.**

We have a few of this pattern left, which on account of discontinuing Cone Driven Type of Lathes, we are offering at the following special prices, NET, f. o. b. Cincinnati:

24"x12" Compound Rest.....	\$1500.00
Extra 2" Bed.....	115.00
Taper Attachment.....	200.00

**THE BOYE & EMMES MACHINE TOOL COMPANY, 2245 Spring Grove Ave.,
CINCINNATI, OHIO**



If you ever ran a lathe it has surely happened to you. It continues to happen daily in almost all shops.

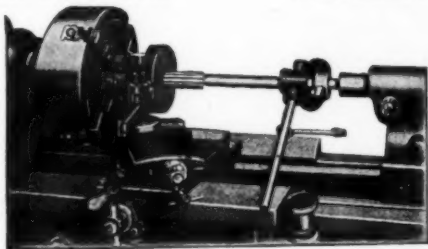
Until the Nicholson Reamer Holder was invented there was no other method by which a mechanic could keep his reamer from jumping in, or prevent it from reaming a tapered hole. This Holder can also be used instead of a chuck for drills and as a hold back in a lathe. It has many uses and saves double its cost in a short time. No. 1 size takes straight shank reamers and drills up to 1" dia., and No. 2 takes up to 2" in dia.

Send us sketch of socket or number of Morse taper of lathe you would like to try one on, and we will send it on trial. If you desire further information and circular, write us.

W. H. Nicholson & Company

117 Oregon Street,

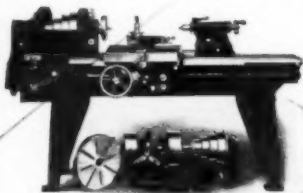
Wilkes-Barre, Pa.



A. V. Carroll Lathes

Have patented invisible gap without extra cost

Made in sizes 12", 14", 16", 18" and 20"



High quality at the lowest possible cost to you.

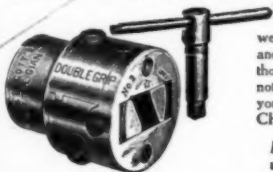
Easy payment plan if desired.

Write for circular, and let us show you a big saving

A. V. Carroll Machine Tool Co., Norwood, Cincinnati, O.

Westcott's Little Giant Double Grip Drill Chuck

Three distinct grips can be applied to the same tool at the same time with this well-known chuck--thus developing a positive grip with many times the holding power possessed by any other chuck.



If you have never used one, we urge that you buy one now and permit it to prove that it has those qualities that insure your not being disappointed whenever you specify WESTCOTT CHUCKS, for lathes and drills.

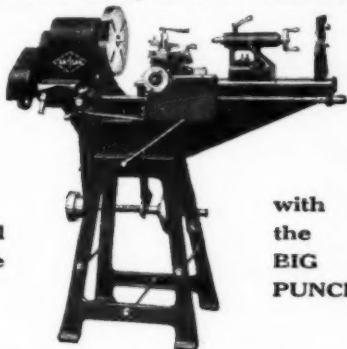
Inquiries will be answered with complete information.

Westcott Chuck Company
316 E. Walnut St., Oneida, N. Y.

"Been making chucks since 1873"

Are YOU from Missouri?

We claim that the "Artisan" 11" Lathe represents greater productive value to the user than any small Lathe on the market today.



**"The
Small
Lathe**

**with
the
BIG
PUNCH"**

One of the wide-awake dealers—

listed below, will gladly SHOW YOU this Tool, and the many novel features which make up the value that we claim.

Shaw-Palmer-Bakewell Company, Los Angeles, Cal.
Flanagan Machinery Co., 321 Clay St., Oakland, Cal.
Motor Supply Co., Phoenix, Arizona.
Mine & Smelter Supply Company, Salt Lake City, Utah.
Crow-Burlingame Co., Little Rock, Arkansas.
Robinson, Cary & Sands Co., St. Paul, Minnesota.
Badger-Packard Machinery Co., Milwaukee, Wisconsin.
H. Channon Company, Market & Randolph Sts., Chicago.
Earl Spitz, 411 Alger Ave., Detroit, Michigan.
St. Louis Machinists' Supply Co., 920 N. Broadway, St. Louis.
Richey-Whaley Machinery Co., 23 E. South St., Indianapolis.
National Supply Company, No. 1 St. Clair St., Toledo, Ohio.
Clark Machinery Co., 1235 St. Clair Ave., Cleveland, Ohio.
Marr-Galbreath Machinery Co., Water St., Pittsburgh, Pa.
Simmons Machine Tool Corporation, Troy Road, Albany, N. Y.
Taylor Machinery Co., 261 Franklin Street, Boston, Mass.
L. V. Standish, 43 Prospect St., Gardiner, Maine.
Chas. J. Geohagan Machinery Co., Birmingham, Alabama.
R. S. Armstrong & Bro. Co., Atlanta, Georgia.
Krueger Machinery Co., San Antonio, Texas.
Norton-Broadway Machinery Co., Cincinnati, Ohio.
A. R. Williams Machinery Co., Ltd., Toronto, Ontario.
Hasam & Sessums, 1A Nuevo Mexico No. 6, Mexico City.
Andrews & George Company, P. O. Box No. F-23, Tokyo, Japan.

Artisan Manufacturing Company
Station "N" ⚙ Cincinnati, Ohio

SEBASTIAN—



15" Geared Head Lathe
Single Pulley Drive
Without Motor
\$765

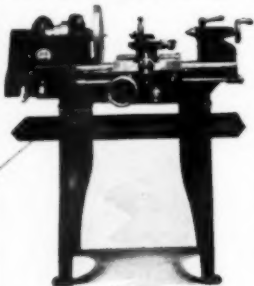
The knowledge, experience and skill derived from almost forty years of exclusive lathe building, has made *Sebastian* Lathes the standard of **QUALITY** in the medium priced lathe field.

Designed Right—Built Right—Priced Right and Guaranteed Correct

Write for details on our new Gold Seal Lathes

The Sebastian Lathe Company
1000 Culvert St., Cincinnati, O., U. S. A.

Monarch Jr. Lathes



are the smallest members of the Monarch lathe family. Yet they are the "biggest little lathes" built.

The Monarch line of lathes includes all sizes and types from the little 9-inch Junior lathe to the big, massive 30-in. lathe. In this line there is a lathe to fill your requirements at the price you want to pay.

Send for Catalog

The Monarch Machine Tool Co.
206 Oak Street, Sidney, Ohio



Order Your High Speed Drills from This Booklet

Recently a prominent shop superintendent gave orders that, hereafter, no one in his plant was to order "high speed drills," but always to specify "Cle-Forge High Speed Drills."

We'll cheerfully send you a copy of this booklet telling all about the famous "Cle-Forge" Drills. A request for it places you under no obligations whatever.

The **CLEVELAND** **TWIST DRILL**

COMPANY
CLEVELAND
 NEW YORK - CHICAGO - LONDON

TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES

Manufacturers, also, of

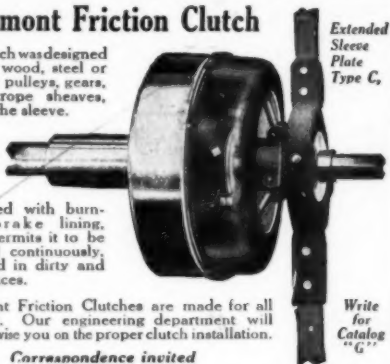
Carbon and High Speed Drills for every purpose; "Mezzo" Super-Carbon Drills; Hand, Jobbers' and Shell Reamers; "Peerless" High Speed Reamers; "Paradox" Adjustable Reamers; "Quick-Set" Reamers; Chucking Reamers for Turret Lathes; Counterbores; Countersinks; Sockets; End Mills; and the "Ezy-Out" Screw Extractors.

CLE-Forge

TRADE MARK REG. U. S. PAT. OFF.

Edgemont Friction Clutch

This clutch was designed to drive wood, steel or cast iron pulleys, gears, drums, rope sheaves, etc., on the sleeve.



It is lined with burn-proof brake lining, which permits it to be operated continuously, and used in dirty and dusty places.

Edgemont Friction Clutches are made for all purposes. Our engineering department will gladly advise you on the proper clutch installation.

Correspondence invited

*Extended
Sleeve
Plate
Type C,*

*Write
for
Catalog
"G"*

Edgemont Machine Co., Inc., DAYTON, OHIO

Cleveland Open Side Planers

Box Tables.

Tool Box in Beds.

Counterbalanced
Side Heads.

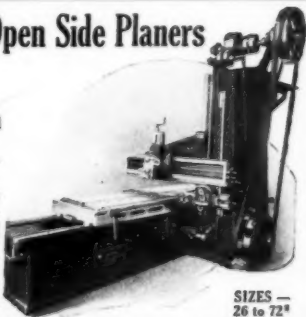
Ball Bearing Counter-
shafts.

Herringbone Gears
for First Reduction.

Graduated Feed
Collars.

All Steel Bull Gears.

Many Other Im-
proved Features.



**SIZES —
26 to 72"**

Simplicity, Rigidity and Accuracy make the CLEVELAND Open Side Planer adaptable to all classes of work.

The Cleveland Planer Co., 3148 Superior Ave., N. E., CLEVELAND, OHIO

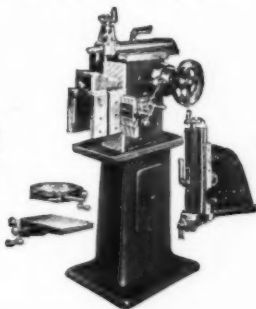
Established in 1900



Rhodes Shaper and Slotter

Reduces Costs on Dies, Tools, Models
And All Kinds of Light Work

Shaper
Stroke
7 in.



Slotter
Stroke
3½ in.

THE "RHODES" has all the essential features of the larger machines in everything but size and price.

It is a money-saver in shaping and slotting all kinds of light work.

Its exceptional efficiency recommends it to all shops, large and small, and its price brings it within the reach of everyone.

*Ask your dealer or write for
CATALOG H22*

The Rhodes Mfg. Company
948 Park Road, Hartford, Conn.

—SHAPERS—RHODES—SLOTTERS—

COLUMBIA SHAPERS

SUPERIOR HEAVY DUTY

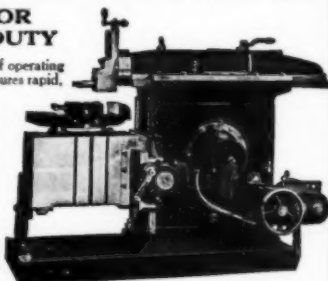
Centralized location of operating handles and levers insures rapid, convenient operation. Massive construction and powerful drive provides for handling heavy work to best advantage.

SIX SIZES

16"-20"-24"

28"-32"-36"

Bulletin No. 7 giving full details sent free on request.



Cone, Single Pulley and Motor Drive

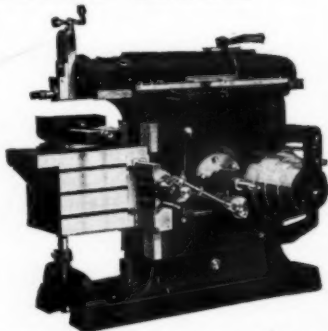
THE COLUMBIA MACHINE TOOL CO., HAMILTON, O.

Manning, Maxwell & Moore, Inc., Selling Agents, New York City and Branches

SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through
Speed Box.

32" Back
Geared
Crank, Single Pulley
Drive.



The Smith & Mills Co., Cincinnati, O., U.S.A.



Collect Your Dust During the Year 1925

With the Old Reliable, Time-Tested

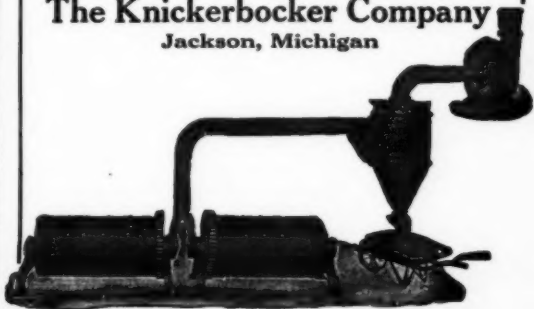
"Rarefied" Dust Collector

It will pay you to do this because it is thoroly efficient—no matter how difficult your dust problem, the "Rarefied" Collector will take care of it to your entire satisfaction.

Besides being efficient, it is also the acme of economy. It saves power, sometimes nearly 50% over old methods. And as to repairs, you will find them next to nothing.

Used in big plants and in small ones thruout the country. Westinghouse is now using thirty-four. Let us mail you our Booklet.

The Knickerbocker Company
Jackson, Michigan



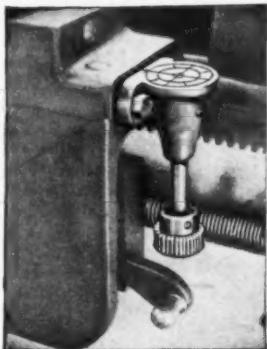
E-Z THREAD DIAL E-Z

New device
lowers cost
of thread
cutting on
engine lathes.

For all
size lathes.

E-Z to
attach.

Send for
folder.



Eliminates
stopping or
reversing the
lathe.

Saves cost of
backing belt.

Saves power
to drive same.

E-Z to use.

Sent on fifteen
days' trial.

**JAMES M. COLVEN, 20 Wolffe Street,
Yonkers, N. Y.**

*Just write us the make and swing of
your Lathe—we'll do the rest*



Hardinge Standardized Draw-in Chucks or Collets For ALL Makes of Lathes

Also Collets for Bench Type Milling Machines and
for Screw Machines. Prompt shipment from stock.
Write for Price List and keep it for reference. And
what do you need now for the New Year?

HARDINGE BROS., Inc., 1770 Berleau Av. CHICAGO, ILL.

APEX

Stationary Automatic Self-Opening

DIE HEADS

Will Solve Your Threading Problems
Hardened and Ground



"Chasers" are ground and corrected
AFTER HARDENING
A Die Head That Pays Dividends

Write for Bulletin No. 10

Apex Machine Co.
DAYTON, OHIO



Style No. 102

In 15 Years We Have Served Over 800 Shops

And most of those stools which we sold at the beginning of our career, are still in use. Good as they were then—

"Square Circle" Stools

are made even better today. Invest in them now, and it is safe for you to forget all about them. The electrically welded steel rings are as strong in the weld as in any other part. Seats are of 1" hardwood, 13½" in diam., securely fastened. Frames or legs are of angle steel.

Full details in our Catalog.

Order now for 1925 and the future.

**Kalamazoo
Steel Goods Company**
408 E. Ransom St., Kalamazoo, Mich.

Barker Wrenchless Chuck

Developed and Manufactured by Thomas Elevator Co.

**A complete Chucking Unit in
Itself. The Barker Wrench-
less Chuck requires No Ac-
cessory Installations.**



*Made in two- and three-jaw
styles, for every kind of tur-
ret lathe, automatic, and
semi-automatic machine work.*

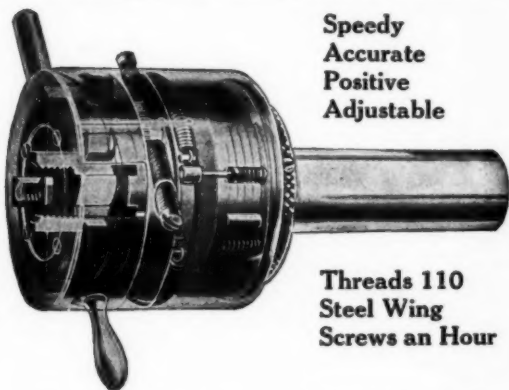
Thomas Elevator Co.

Chuck Division

31 So. Hoyne Ave., Chicago

Well Liked in Auto Plants

The Rapid R-S Automatic Die Head



Speedy
Accurate
Positive
Adjustable

Threads 110
Steel Wing
Screws an Hour

The above is the notable record in a prominent Detroit manufacturing plant. There are many auto plants where the R-S Die Head is used on the most exacting work, such as cutting pipe threads on water pump bodies, where a defective thread means a leak and rejection. The volume of work in this line is also very satisfactory.

With the dependable "R-S" you have neither stripped threads nor broken chasers. Nothing to delay the work in hand or to help swell the scrap pile.

The chasers run in hardened ways; die is carried on two locking pins instead of the usual one, and positive opening mechanism prevents chasers sticking or acting inaccurately in any way. Made in 21 sizes.

Writing us about your threading problems incurs no obligation

Rickert-Shafer Co., 1110 Cherry St., Erie, Pa.

AUTO REPAIR SHOPS

**The Whitney Cylinder Grinder Will Make Money
For You Regrinding Automobile Cylinders**

The grinding wheel travels in a true circle and grinds off only enough to make a hole that is round and straight. This machine does the work right and does it quick. That's why you can do a profitable business with a Whitney.

Write for new catalog

BAXTER D. WHITNEY & SON
Incorporated
WINCHENDON, MASS., U. S. A.

Selling Agents:

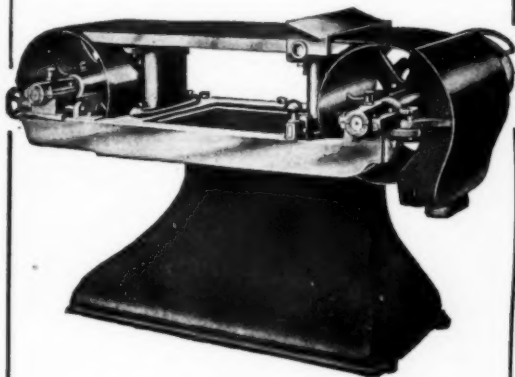
BERGER & CARTER CO., 470 E. Third St., Los Angeles, Cal.
E. A. KINSEY & CO., Indianapolis, Ind., and Cincinnati, Ohio
MARSHALL & HUSCHART MCHY. CO., 17 So. Jefferson St., Chicago
CADILLAC MACHINE CO., Beaubien & E. Lafayette Sts., Detroit, Mich.



PEERLESS SURFACING MACHINES

Will reduce grinding and finishing costs
and give you better work.

Can be substituted for many expensive
milling machine and planer operations.



Made also in vertical and bench models.

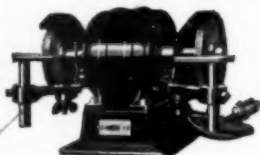
Send for large folder

PEERLESS SURFACING MACHINE CO., Inc.
TROY, N. Y.

In Canada: A. R. WILLIAMS MACHINERY CO., Toronto

A "BODINE" in Every Department

Saves Time—Insures Sharper Tools



BODINE Portable Electric TOOL GRINDERS

Are placed in every department in some plants, saving steps and time and insuring sharper tools.

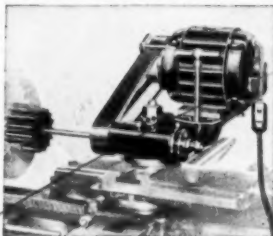
THE "BODINE" is as near mechanical perfection as we know how to make it. It is equipped with Norma precision ball bearings, heavy wheel guards, tool rests adjustable to any position, an ideal oiling system, etc., etc. And the price is right, too.

Write for the complete description

It costs nothing, but may prove quite valuable

The Bodine Electric Company
2256 West Ohio St., Chicago, Ill.

PRECISION GRINDER



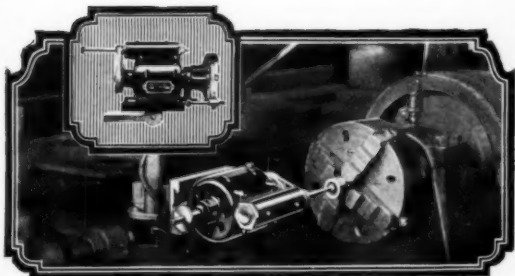
PAT. PENDING

A highly developed grinder for either internal or external precision work. Has new and valuable features. Send us your address for our booklet—it is worth having.

Manufactured by

J. E. GILBERT GRINDING CO.
214-16-18 Greenbush St., MILWAUKEE, WIS.

SERVICE TOOL DIE & MFG. CO.
2256-58 W. Walnut St., CHICAGO, ILLINOIS
Distributors for—ILLINOIS, OHIO, INDIANA, MICHIGAN



Even SKF Trusts Its Grinding to Dumores

THE photograph above shows a Dumore No. 2-AG grinder in action in the tool room of the Hess-Bright Mfg. Co., subsidiary of SKF Industries, Inc. Here again Dumore grinders have been approved by an internationally famous institution; another convincing proof of their ability to perform reliably and efficiently regardless of how exacting or how difficult the requirements may be.

The same features that make Dumore grinders worthy of the trust of such a world prominent concern as SKF Industries, will be equally valued by you, once you have used them in tool room or shop. Available in six styles and sizes—each with individual speed ranges—they offer a grinder with the correct cutting speed for any grinding need. Dynamic balance and smooth operation of Dumore grinder motors eliminate vibration. Ability to operate on either alternating or direct current assures 100% utility. Portable, they save tearing down expensive set-ups.

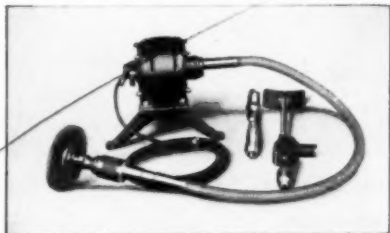
If maintenance of grinding limits as close as .0001, without taper, bell-mouth or chatter marks, appeals to you; if greater production, lowered labor costs and other resultant advantages of Dumore operation interests you, it will pay you to send for our grinder catalog. Your copy is wrapped—ready for the mail. All we need is your name and address. Write!

Wisconsin Electric Co., 43 Sixteenth Street, Racine, Wis.

DUMORE HIGH SPEED GRINDERS

The Whirlwind Buffer and Grinder

Will cut the cost on any unhandy grinding or polishing job



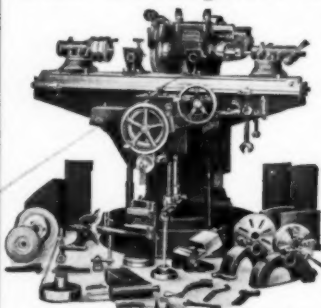
Send for our latest bulletin

Stow Flexible Shaft Co., 3454 Ludlow St.,
Philadelphia, Pa.

The Best Since 1876

The Thompson Universal

10" x 36" Grinder



For practically every kind of grinding operation that may come up in your shop.

Efficient, convenient and economical. It will save both time and money for you.

Write for Bulletin

Manufactured By
THE THOMPSON GRINDER CO., - Springfield, Ohio

Grand Rapids Universal Grinder

MOTOR DRIVEN

With All Overhead Works Eliminated



GRAND RAPIDS No. 3 & No. 4 Universal Grinders
are furnished either hand feed or power feed,
wet or dry, motor drive or belt drive.

CIRCULAR ON REQUEST

Gallmeyer & Livingston Co.

342 Straight Avenue, S. W.

GRAND RAPIDS, MICH.

Weigel Single-Wheel "Kwality Kaster"

Will not crush or break. Swivels on steel patchined rollers. The best single caster on the market.

Double-Wheel "Trukaster"

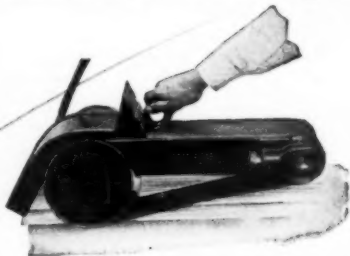
Lasts three times as long as others. Easiest running, strongest, and most durable double-wheel caster made. Has heavy plates and axes.

Write for Price List

**THE HAMILTON
CASTER & MFG. CO.
HAMILTON, OHIO**



Grind It Cheaper



Our 6" Belt Grinder puts a straight grain finish on work up to 18 inches in length. Operates in either a horizontal or vertical position from any electrical circuit. *Write for circular.*

Porter-Cable Machine Co., Syracuse
N. Y.

Webster & Perks

GRINDING MACHINES

ABSOLUTELY NEW

Yet Priced to Compete with Used Tools

Universal machines combine tool room accuracy with great versatility, rigidity and power for quantity production. Plain machines handle either straight or taper grinding with extreme accuracy. All machines are brand new, and are given thorough inspection and test under belt before shipping. A real bargain at the price.

Send for Circular

Barber-Colman Company
Rockford, Ill., U. S. A.

Balancing Ways

Anderson Improved are Always Ready



Made in six sizes for balancing anything that turns on a shaft, up to 24,000 lbs.—pulleys, gin brushes, turbine rotors, crank shafts, polishing wheels, fly wheels, etc.; also for testing straightness of shafts, crank shafts, etc. No centers required; no leveling. Always ready and accurate; very sensitive.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards	20"	30"	30"	66"	88"	20'
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Bend	Bid	Bis	Bib	Ben	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.

1915 Kishwaukee St., Rockford, Ill.

For Sure Balance--

an absolutely level and solid "Way" is necessary

Bowsher "Balancing Ways"



are brought to an absolute *level* in ten seconds. No revolving parts.

The edges or "knives" upon which the work is tested are ground *true*, and are mounted upon the planed "ways" of a heavy bed or frame.

Standards adjustable to suit length of arbor.

Three sizes for floor—one for bench use

Send for Catalog "F"

The N. P. Bowsher Co., South Bend, Ind.



Type C-1 Tool

**More
Economical
than a
Diamond**

You will produce work at
infinitely less expense by
using the

**“Precision” Roughing
and Semi-Finishing
Wheel Truing Tool**

Not a substitute for the diamond, but built on
an entirely different principle, which is an im-
provement over the diamond in that it pro-
duces work equal or better than that of the
diamond, and at a greatly reduced cost.

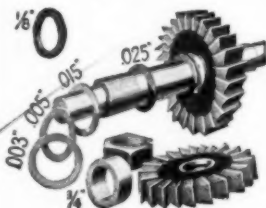
**It will pay you to put Precision
Wheel Truing Tools to a test.**

Ask for descriptive booklet

**The Precision Truing Machine & Tool Co.
CINCINNATI, OHIO**

Steel Spacing Washers—

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



Stock sizes for arbors of following diameters: $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{5}{8}$, $1\frac{3}{4}$, $1\frac{7}{8}$, 2, $2\frac{1}{4}$, $2\frac{1}{2}$, 3, $3\frac{1}{2}$ and 4 in. and larger.

Stock thicknesses: .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .032, .047, .063, .093 and .125 inch.

Other thicknesses up to 3.000" made to order, with keyways if so ordered.

Ask us to send samples; you'll like them

Detroit Stamping Company
3443 West Fort St., Detroit, Mich.

Save Time Setting Gang Milling Cutters

Eliminate
Thin
Washers



Hardened
and
Ground

"Wear-Ever" Adjustable Spacing Collars permit setting cutters to the thousandth part of an inch without removing from the arbor.

Stock sizes for $\frac{3}{8}$ " to $2\frac{1}{2}$ " arbors, sent on approval
They are adjustable in 12 steps of 2/1000 inches

SCULLY-JONES & CO. TOOL DIVISION
13th and Robey Streets CHICAGO, ILL.

Burke Bench Millers

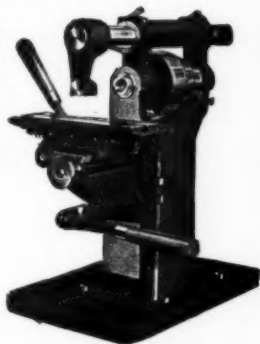
Hand and Power Feed—\$100 to \$220

Burke Millers are dependable machines, built to close limits and well balanced. They are accurate, convenient, economical and good producers.

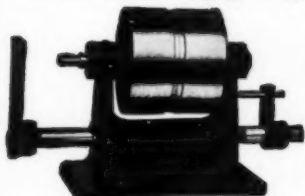
No. 3 Bench Type

Longitudinal Feed 8 inches.
Traverse Feed $3\frac{1}{2}$ inches.
Vertical Feed $7\frac{1}{2}$ inches.
Table Surface $3\frac{1}{2} \times 12$ inches.
Price Bench Type \$155.
Price Column Type \$171.

Write for complete data



Burke Tapping Machines



FRICTION DRIVEN

Built in three sizes, $\frac{3}{16}$ inch at \$25, $\frac{1}{4}$ inch at \$45, and $\frac{1}{2}$ inch at \$60.

Complete in themselves, and highly efficient for all work within their capacity, yet they cost less than the average tapping attachment.

They increase production 20 or 30 or more to one over hand tapping, and do it easy without breaking taps. Let us send you a machine on 10 days' trial, to prove that it will do all we claim for it. Write today, if convenient.

The Burke Machine Tool Co.

297 East 16th Street,

Conneaut, Ohio

Our Hollow Bored Forgings And Steel Shafts

Are RIGHT in both QUALITY and PRICE



**Piston Rods
Clutch Shafts
Lathe Spindles**

**Rams
Steel Pipes
Etc., Etc.**

Send along your blueprints with a trial order; we'll both be pleased

**American Hollow Boring Co.
Erie, Penna.**



Special Machinery

**Contractors, Builders, and
Designers**

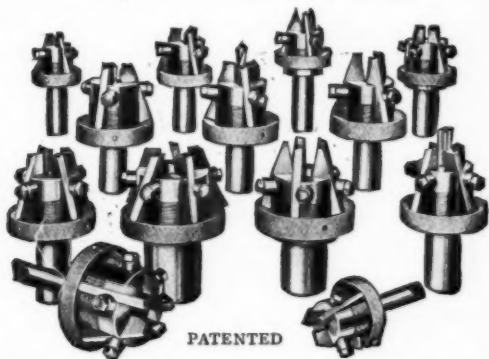
C. H. Cowdrey Machine Works

Established 1875

Fitchburg, Mass.

A Saving Hint for Your Shop

"Use Genesee Hollow Mills"



PATENTED

THEY SAVE—Because the fourteen sizes cover the entire range from $\frac{1}{4}$ " to 2", which ordinarily requires hundreds of solid tools.

THEY SAVE—Because one set of blades outlasts three to five solid tools, and can then be replaced at nominal cost.

THEY SAVE—Because Genesee Hollow Mills cut up to 15" a minute in steel. They are stronger than solid tools and cannot change in size.

THEY SAVE—Because they are ideal for finishing castings, forgings, etc., and more economical than non-adjustable mills for every purpose.

Consult with us freely for economical production

Genesee Manufacturing Co., Inc.
Rochester, N. Y., U. S. A.

Manufacturers of Genesee Rapid Production Tools

The BARKER GENERAL PURPOSE VISE

For Planers, Shapers, Drilling and Milling Machines



Two Sizes

Width of jaws $11\frac{1}{2}''$ — $12''$

Depth of jaws $2\frac{1}{2}''$ — $3''$

Jaws open $8''$ — $12''$

Weight 180—210 lbs.

Also 16" Mold Makers' Vise

OUR MOLD MAKERS' VISE has 13" width of jaws, 7" depth, and jaws open 16"—weight 290 lbs.

ALL BARKER VISES are made extra heavy, with steel faced jaws, and are graduated to swivel any angle. They stand lots of hard usage.

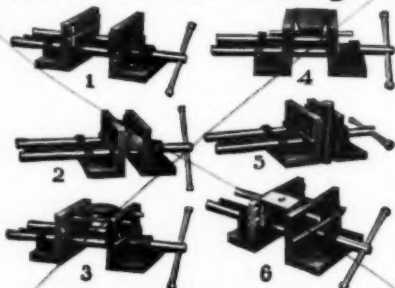
Get in touch with us before buying

WM. BARKER & CO.

Manufacturer of Machine Tools,

COVINGTON, KY.

The D. S. West Drilling Vise



Nothing else like it. Both strong and light, with 8" jaws and 8" opening. Holds round, flat, square and irregular shapes better than other vises. *Full description on request.*

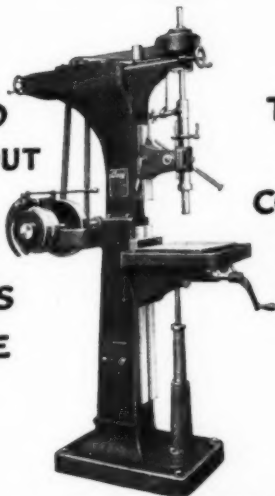
Armstrong Manufacturing Co., Bound Brook, N. J.
Portland, Oregon

\$

GET
THE
Avey

\$

TO DO
WITHOUT
AN
AVEY
COSTS
MORE



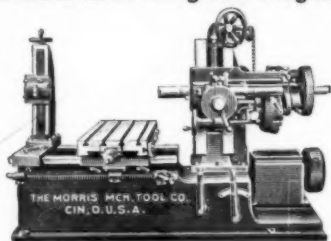
THAN
IT
COSTS
TO
BUY
IT

\$

THE AVEY DRILLING
MACHINE CO.
CINCINNATI
OHIO

\$

Morris Horizontal Drilling and Boring Machine



Convenience of operation and ample power behind the cut makes it a splendid production tool.

The micrometer adjustments to the head, table, and bar support, and the splendid workmanship, makes it a wonderful tool room proposition. *The circular tells you more about it.*

The Morris Machine Tool Co., Cincinnati, Ohio

Ball Bearing Drills Plain Bearing Drills



Foot Lever Feed can be applied to any of our **SINGLE SPINDLE** Drills

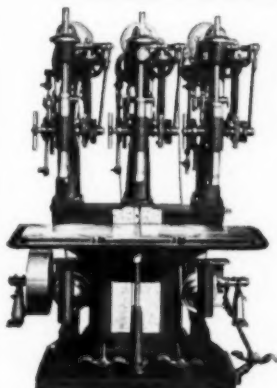
REED DRILLS are the result of our experience of 35 years in making good tools. Every detail has been carefully worked out to insure durability and efficiency—to make them exceptional producers.

Ask for prices; they will interest you

Francis Reed Co.

43 Hammond St.
WORCESTER, MASS.

Used Much On Auto Parts and Agricultural Implements



If you are at all interested in lower drilling costs, you should investigate the Rockford Automatic Gang Drilling Machine

*Built with
2, 3, 4 and 6
Spindles*

Box Column Type

Satisfied Superintendents endorse this modern, ultra-convenient machine. It

produces dependable, accurate work in large volume. Enables operators to establish new low cost shop records.

Automatic Return—When each spindle has completed its operation it automatically returns to its highest position, where it remains until the starting lever is tripped, when it immediately drops to position above the work.

By Removal of the stop pin in the cam, the spindle will immediately return to lowest position above work, and when tripped by automatic stop, will return to highest position and immediately drop again to work, repeating the movement automatically until the power is shut off. The spindle can be pulled ahead of the feed while in operation, a great advantage in drilling through a cored piece, piping or similar work.

Ask for Circular. Glad to answer questions.

Rockford Drilling Machine Co.
ROCKFORD, ILLINOIS

Thor

ELECTRIC DRILLS

Rugged strength in every part

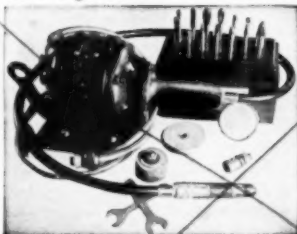


That's what you look for in a drill. In the *Thor* you'll find ball and roller bearings, double-silk-wound coils, Jacobs Chucks, and other parts of equally high standard. That's why they run smoothly for so many months without repairs.

78 Types to Pick From—3-16" to 2" capacity. Among them is the *Thor* qualified by hardy and apt construction for your work, no matter how uncommon it may be. Send for illustrated catalog.

Independent Pneumatic Tool Company
600 W. Jackson Blvd., Chicago, Ill.

30-Day Offer ^{On} the Pattern Maker's Pal



Consisting of

- 1/4 h. p. Westinghouse motor
- No. 5x4' shaft
- No. 5x4' sheath
- Can of grease
- No. 5 handpiece with two wrenches
- Super service drop cord and switch
- 14 Burs in block
- Grinding spindle
- 3" Grinding wheel
- Sanding drum

Regular price of 110 volt, a. c., 3450 r. p. m. outfit is \$75. Our special 30-day offer at **\$63.**

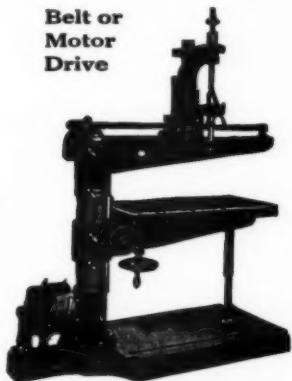
Regular price of 110 volt, a. c., 1725 r. p. m. outfit is \$70. Our special 30-day offer at **\$60.**

Only 65 sets at these prices. First come, first served.

The Hergi Mfg. Co., 250 Fifth Street, Bridgeport, Conn.

The Taylor & Fenn Sensitive High-Speed Radial

**Belt or
Motor
Drive**



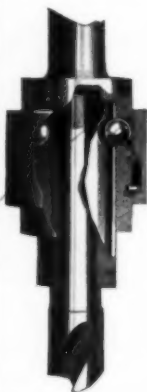
This great manufacturers' drill combines the speed of the sensitive with the flexibility of the radial, for practically all drilling requirements within its range. Drill the big pieces on the base and the small pieces on the table.

Tapping heads, power feed heads or hand lever feed heads may be used singly or in combination.

The drive is positive, through gears and silent chain. The spindle has three speeds and is bored for No. 2 Morse taper.

*A thorough investigation of this machine will repay you
We shall be glad to furnish complete data upon request*

The Taylor & Fenn Co.
Hartford, Conn., U. S. A.



"Titan" Positive Drive

Quick Change Drill Chuck

Simply strike the end of drill, and out it comes. A one-armed man can do it.

Operates in any position—highly efficient on horizontal and inverted spindle machines.

The broken tang collet gives a positive drive to drills with broken tangs.

Made in sizes No. 0 to No. 5 for any taper shank drill, counterbore, reamer or similar tool. Saves time; saves drills; cuts costs.

*It has other superior qualities
Write for descriptive price list*

Titan Tool Company
Erie, Penna.



Multiple Drilling

On Your Single Spindle Drilling Machine

Do your multiple drilling in any pattern on a single spindle drill with a

U. S. Multiple Spindle Drill Head

Made regularly with 2 to 6 adjustable spindles. Special heads made to your order, with adjustable or fixed spindles.

*Let us help you make
a worth-while saving*

The United States Drill Head Co., 1952 W. Sixth St., CINCINNATI, O.

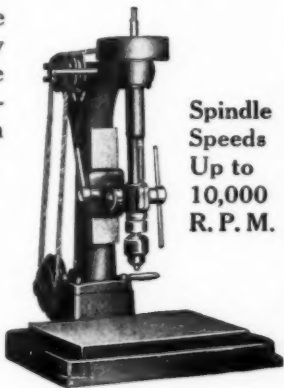
Michigan Agents—National Sales Engineering Corp., Detroit, Mich.

Don't Forget—

**Wood, Fibre, Rubber,
Paper, Mica, Bakerlite**

as well as the
ordinary
metals can be
drilled to ad-
vantage on
the

**Leland-Gifford
Super-
High-Speed
Ball Bearing
Drilling
Machine**



**Spindle
Speeds
Up to
10,000
R. P. M.**

Write us about this Drill to speed
up your drilling operations.

Ask for Bulletin No. 502

Leland-Gifford Co.

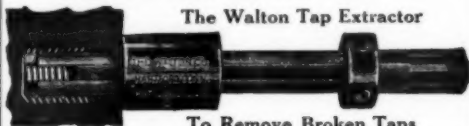
Worcester, Mass.,

U. S. A.



We, Too, Are Strong for Economy That's Why We Recommend—

The Walton Tap Extractor



To Remove Broken Taps

IT IS ESTIMATED that about 90% of all taps break while in service. Removing the broken parts quickly and without doing damage to the work, is often a fine art, but a "Walton" makes it easy—easy for even a "dub." Soon earns its small cost over and over. Sizes No. 8 to 1¼".

*We'll let you have one on 60 days' trial.
If it doesn't make good, you may return it.*

THE WALTON CO., Hartford, Conn.



Drill Press Attachment

FOR

Driving Screws and Nuts

Several Sizes

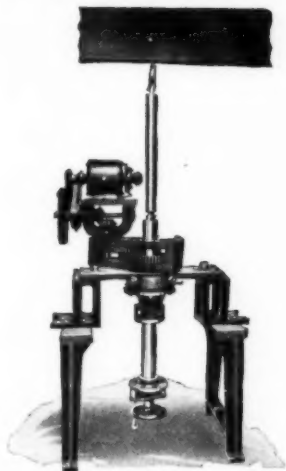
Manufactured By
N. A. Strand & Co.
CHICAGO

5001 North
Lincoln
Street

**Drive
Them Down
by Power**



Something New



The Pedrick Boring Unit

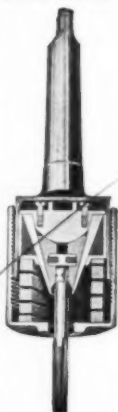
This picture of drilling an overhead beam is only an indication of what the Boring Unit can do. It is intended more for other work than for drilling, but to get the whole story, write for a circular.

The Boring Unit removes the limitations from the portable boring bar, and reaches a field of work that otherwise requires the largest machine tools.

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Builders of Portable Cylinder Boring Bars, Crank Pin Turners,
Portable Millers, Pipe Benders, etc.



The Positive Elimination Of Tap Breakage—

Is something we all have been looking for but have found it difficult to get until the advent of the "Woodstock."

The Woodstock Improved No-Tap-Breakage Chuck

—automatically releases tap the instant it binds or strikes bottom. Utilizes up to 95% of strength of tap, with positive assurance it will not break. A small boy can adjust it. Will save time, temper, labor and money in your shop.

Write for details and trial offer

Peter Bros. Mfg. Co., 115 Railroad St.,
ALGONQUIN, ILL.

Patented
Jan. 30, 1917



Type 6

"Autex" Extension Reel

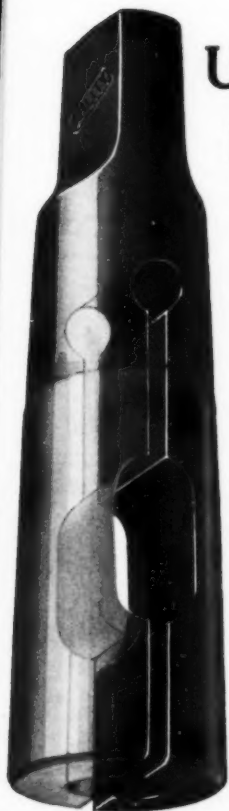
Rapidly finding a place in the largest industrial plants, machine shops, service stations, etc., in the U. S. Used for both electric lamp and power extensions.

Approved by Underwriters

Write for descriptive circular



The Cincinnati Specialty Mfg. Co., Inc.
1903 Powers St., Cincinnati, Ohio



PATENTED MAY, 1919

The Utility Sleeve

A Detachable Taper Shank For Straight Shank Tools

Its use. When used with the Utility Sleeve, straight shank drills, reamers, taps, etc., work as efficiently as solid taper shank tools.

Saves small tool cost. The saving in small tool cost is enormous, because only the straight shank tool of high speed steel is discarded when worn or broken, and not the entire taper shank tool.

Cuts chuck costs. It saves the cost of expensive chucks with straight shank tools, as the Utility Sleeve drives them efficiently without the use of screws or wrenches.

In operation, it drives the tools true and positive, saves time, saves money and increases production.

Its construction is unexcelled. It is made of $3\frac{1}{2}$ per cent nickle steel, accurately machined and properly heat treated. Every Utility Sleeve is also tested and absolutely guaranteed.

*Write for our complete
Catalog of Utility
Interchangeable Tools*

The J. C. Glenzer Company

6469 Epworth Blvd., Detroit, Mich.

ARMSTRONG Complete Line of RATCHET DRILLS



Packer, for rough service; *Standard*, for general use; *Weston*, extra heavy; *Universal* and *Short Ratchet*.



Write
for
OUR
Ratchet
Drill
Catalog

The Armstrong Universal

The "Universal," shown above, may be used in awkward corners and confined spaces where other Ratchets are useless. Often pays for itself on a single job. Simplest, strongest, fastest.



Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.

T.H.L. Front Lever Bench Punch

Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work.

PRICE \$45

Extra Punches, 20 cents each; extra dies, 30 cents.

Capacity 13/32" thru 1/4" steel, 11/32" thru 5 16". Punches up to 1 1/2". Weight, 70 lbs.

A good buy; can ship promptly

**T. H. LEWTHWAITE
MACHINE CO.**

(Est. 1890)

417 E. 31st St., NEW YORK



NATCo

**Straight Shank
Adjustable
Holders**



**Economy
Convenience
Durability**

Write for Circular

**The
National Automatic Tool Co.
Richmond, Indiana**

Steel Bearing Balls

**Brass, Bronze, Aluminum
and Monel Metal Balls**

**Steel
Burnishing
Balls**



**Burnishing
Cones**

**Burnishing
Pins**

Immediate Shipments from Stock

Ask for Price List 23-H

The Abbott Ball Company

Elmwood District,

Hartford, Conn.

Speed — Uniformity — Finish In Riveting



Speed:—One rivet per second.

Uniformity:—Each rivet headed with same degree of tightness or looseness as desired.

Finish:—Perfectly formed, highly polished heads—no hammer or tool marks.

Grant Noiseless

Rotary Rivet Spinners are the only machines built which will accomplish the above, and they may be *operated by cheap help.*

*Ask for Catalog, showing several styles
Also send samples of work for riveting*

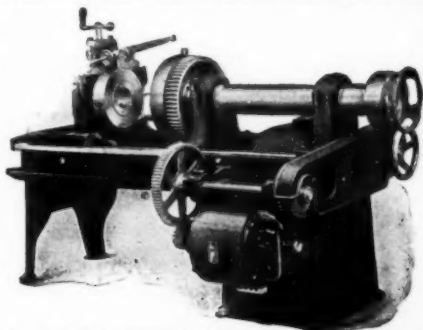
The Grant Mfg. & Machine Co.

C. E. Station,

Bridgeport, Conn.

B & Ks for Your Pipe in 1925

Will Mean Rock-Bottom Economy



No. 3 Peerless Improved. Motor Drive. Cap. $\frac{1}{4}$ " to 3".

B & K pipe threading and cutting equipment in your shop will assure you of dependable economy throughout the year. They have been successful manufacturing tools for forty years, and the 17 styles and sizes are the embodiment of efficiency and accuracy. They thread pipe from $\frac{1}{4}$ to 18 inches in diameter.

The features that give B & Ks their marked superiority are described in our Catalog. Let us mail you a copy, so you can see how speed and accuracy are built right into the machines. No matter how elaborate or small your requirements, we can furnish the machine that will save you time, labor and money.

Let us help you nail down that economy for 1925

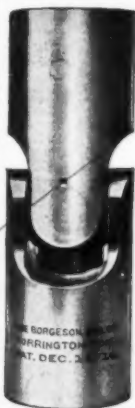
Bignall & Keeler Machine Works
EDWARDSVILLE, ILL.

Sales Agents: Manning, Maxwell & Moore, New York, N.Y.

CHICAGO
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BOSTON
DETROIT

SYRACUSE
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PHILADELPHIA

ST. LOUIS
ATLANTA
SEATTLE
SAN FRANCISCO



"Borgeson Universal Joints"

**Are you a user of Universal Joints?
If so!**

Remember well and bear in mind that a good Universal Joint is hard to find. But if you want one tried and true, you will want the "Borgeson" before you are through.

You will become not only a "Buyer" but a "Booster" for "Borgeson."

SIZES: $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$,
 $1\frac{1}{2}$, $1\frac{3}{4}$, 2, $2\frac{1}{2}$, $2\frac{7}{8}$.

Should you require Special Universal Joints, be sure to write for quotation.

*Complete description gladly
furnished upon request*

The Borgeson Mfg. Co., Inc.
Torrington, Conn.

Vanderbeek Giant Joints



**Efficient to
an angle of
45 degrees**

**Vanderbeek
Universal
Ball Joints**

Tested by Time

Used by U. S. Gov't. and Best Shops

These joints are entirely enclosed against dirt, are self-oiling, have all wearing contacts of hardened steel of large diameters, and designed for the most severe strain.

American Tool Works, Inc.
Hartford, Conn.

"WHITNEY"

Silent Chain Drives



"WHITNEY SILENT CHAIN DRIVES"
are positive, yet flexible. They operate on
very short centers and deliver practically
every ounce of power to the driven shaft.

Let us fit the drive to the job

THE WHITNEY MFG. CO., - HARTFORD, CONN.

NEW YORK
L. C. Biglow & Co., Inc.
243 W. 55th St.

BOSTON
George C. Steil
727-A Boylston St.

PHILADELPHIA
R. J. Howison
624 Race St.

PITTSBURGH
Pittsburgh Gear & Mch. Co.
27th & Smallman Sts.

SYRACUSE, N. Y.
George McPherson
201 Norwood Ave.

SAN FRANCISCO
A. H. Coates Co.
615 Howard St.

SEATTLE, A. H. Coates Co., 1115 E. Union St.



No. 218-DC

ANGLE STEEL STOOL CO.

Builders of
**Factory and Shop
Steel Equipment**

PLAINWELL,

MICHIGAN

*Write
for
Catalog*

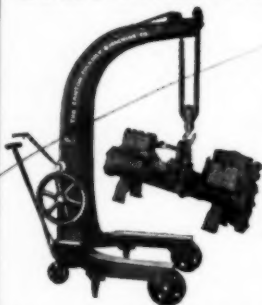


No. 5-26 Bench Legs



No. 4 D. S.
All Steel Stool—Any Height

OMIT *the* Lift! Lug!! Labor!!!



Install CanTon Cranes in your shop and you will effect a brand new saving in the New Year, because

One CanTon Crane, Hoist and Truck—

with a one-man crew, will save the time of 6 to 10 strong men. Also temper and bruises. Your choice of several sizes.

Write for Booklet E-8

Canton Foundry and Machine Co.
Canton, Ohio

New York Office: 203 East 15th Street, Second Floor

Tribloc Hoists

(SPUR GEAR)

Almost Unbreakable



All parts are made of Drop Forged Steel and Malleable Iron.

Capacities from $\frac{1}{4}$ to 20 Tons.

We also build a complete line of I-beam Travellers, Screw Hoists and Differential Hoists.

*Write for
Catalogue 5A*

Ford Chain Block Co.

PHILADELPHIA

Builders of Better Hoists

Compact—Sensitive—Accurate—Durable
The "ATLAS JUNIOR" INDICATOR

Reads over a range of 0.055"—at a glance. Dial may be set at zero after adjusting to work. Contact point can be locked in position for inspecting. Keep it in your pocket and use it anywhere. Details?

PRICE \$7.50



Sold by Dealers or Direct

WALLACE BROS.

160 N. Wells St., Dept. B.B. CHICAGO, ILL.

Model "25"

In a
Leather Case
with
Universal
Attachments

**Only
\$10.**



On a Surface Gauge

FEDERAL
Dial Indicator

Adjusts instantly to any desired position on a surface or height gauge; also for checking lathe, miller, grinder, shaper or planer work.

Send for our complete catalog of Dial Indicators, Cylinder Gauges, Comparators, Thickness Gauges, Piston Gauges, Rubber Gauges, Piston Pin Gauges, Fabric Gauges, Paper Gauges, Wire Gauges, Piston Ring Gauges, Thread Lead Gauges.

Federal Products Corporation

Elbow & Chestnut Sts., Providence, R. I.

**How to Use
The ROCKWELL
DIRECT READING
HARDNESS TESTER**



1 Place work on Proper Anvil

2 Turn wheel to elevate work into contact with Test Point and continue Turning and forcing work against Test Point till an Index shows that 10Kg Minor Load is applied

3 Turn Bezel of Gauge to set Dial zero back of Pointer

4 Press Button which releases Major Load

5 Turn Crank which lifts off Major Load leaving Minor Load still applied

6 Read ROCKWELL Hardness Number on the Dial

We who make the Rockwell Hardness Tester make also the highest grade of electric Pyrometers, yet we know that the correct hardening furnace temperature is not enough to mean proper hardening. When the hardener is too slow in quenching or when your steel is of an unknown kind, you need a Rockwell Tester to check your hardening for, after all, the proof of the pudding is in the eating. Let the Rockwell have a bite at the hardened piece and it will tell you quickly and surely just how hard it is.

The Rockwell tests the greatest variety of shapes and sizes. It is a combined press and micrometer. It is a mechanic's job for mechanics to use.

WILSON-MAEULEN COMPANY INC

Makers of Pyrometers and Hardness Testers

St. Mary's St. & Concord Ave., New York City

POWELL BLOW GUN

Designed to dispense air with utmost economy.
Used for cleaning machines, machine tools and work benches.



Made with different tips for special requirements.

Circular on request.

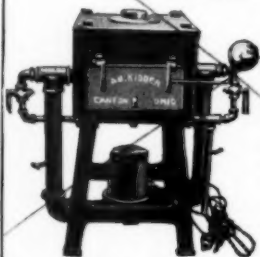
The Wm. Powell Co.

2525 Spring Grove Ave.,

Cincinnati, O.

Single Unit Heat-Treating Furnaces

Forge, Semi-Muffle, Full Muffle
and Combination Types



Furnaces for annealing, carbonizing, melting, hardening and tempering; in a full range of sizes to meet the needs of the small tool room or machine shop, as well as the largest manufacturing plant.

*Ask the man who uses one;
if you don't know him, ask us*

A. B. KIDDER, 1104 5th St., N. E. CANTON, O.



The Old Way

Results in damaged shafts, bushings, pins and other parts, as well as accidents to the workmen.

With Nicholson Arbor Presses

all of these losses and accidents are eliminated, and considerable money is saved. Made in five sizes that take work up to 20" in diameter and 31" high and exerting pressures up to 9,000 lbs. Can make immediate delivery on all sizes and will be glad to send any size on trial.

Nicholson Expanding Mandrels

Save space—A set of nine does the work of several hundred solid mandrels.

Save time—Instantly fit any hole, round or square, from $\frac{1}{2}$ " to 7".

Save labor—No need to caliper a dozen or so solid mandrels, or turn one down to fit certain job.

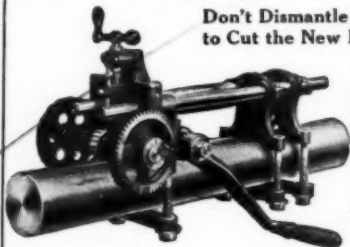
Write for literature and 30-day trial plan

W. H. Nicholson & Co.
117 Oregon St., Wilkes-Barre, Pa.



Re-Arranging Your Shop?

Don't Dismantle Shafting
to Cut the New Keyseats



Use a
BURR
Portable
Keyseater

Cuts accurate
keyways up to
12" long any-
where, in any
position, in shafts
up to 5" diam.

Seven sizes. Operates by hand or power.

Over 9000 in Use—Order ONE for the NEW YEAR!

JOHN T. BURR & SON

422 Kent Ave., Brooklyn, N. Y.

A THRILL

IS WHAT
YOU GET WHEN THIS
KEYSEATER

works for you. It mills keyseats of
uniform width and depth with par-
allel sides and parallel with the axis
of the bore.

All you need is Catalog O

National Machine Tool Co.

2268 Spring Grove Ave.,

Cincinnati, O.

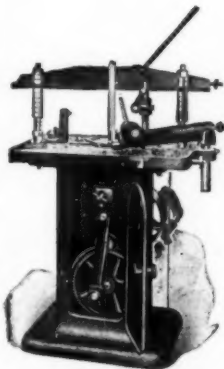
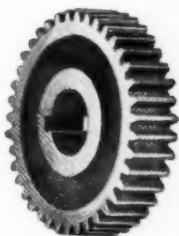


How About Keyseating?

You must have in your shop a good many

Keyways

*like th's
to cut—*



No. 1 Keyseater

If so, there's nothing quite so satisfactory as

The Davis Keyseater

For cutting keyways in pulleys, gear blanks, bell cranks, crank handles, etc., and for slotting, oil grooving and similar work.

Made in two sizes—

No. 1, Cap. $\frac{1}{8}$ to 1 in.

No. 2, Cap. $\frac{1}{8}$ to $\frac{3}{4}$ in.

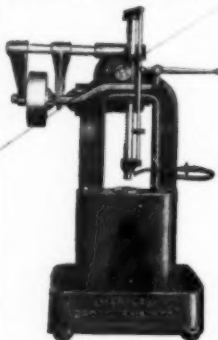
The Keyseater for production, economy and profit

Let us tell you about it—no obligation—

Davis Keyseater Company

255½ Mill St., Rochester, N. Y., U. S. A.

American 18" Vertical Broaching and Assembling Press



Pressure, up to 6 to 8 tons.

Maximum stroke, 18 inches.

Floor space, 4½ ft. square.

A thoroughly efficient machine, of simple construction, sold at a moderate price, which will do your broaching quickly, economically and satisfactorily.

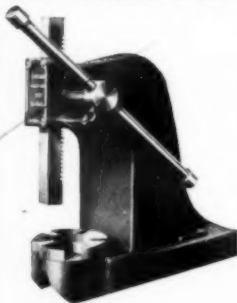
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**American Broach
and Machine Co.**

Ann Arbor,

Michigan

Sheldon Arbor Presses



Semi-Steel Frames.

**Alloy-Steel Rams and
Pinions. Heat Treated.**

Large Stub Teeth.

**Square Rams, carefully
fitted, insuring
proper alignment.**

*Ask for complete cata-
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SHELDON MACHINE COMPANY

403 East 29th Street,

CHICAGO, ILL.

The CATLIN—Simplest Keyseater in the World



**Faster Keyseating
Cheaper Keyseating
Accurate Keyseating
Simplest Operation
Greatest Durability**

**Has less than half
the number of
parts of other
keyseaters.**

**Either direct-con-
nected motor or
belt drive.**

**A size for every
class of work.**

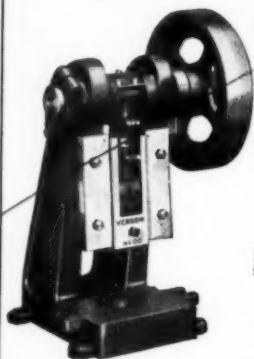
**So simple in construction, so rapid in operation, and
withal so durably built, that the Catlin is easily the
most efficient and economical Keyseater made today.**

**The picture shows the No. 1 Catlin, belt driven, with
three-step cone pulley. Our other sizes, for belt or
motor drive, cover practically every modern key-
seating requirement.**

***We invite your inquiry. Glad to mail you a
partial list of big plants now using CATLINS***

Chattanooga Machinery Company

2401 Bennett Ave., Chattanooga, Tenn.



Trade **Version** Mark

Is a symbol of
QUALITY
found only on Version
Power Presses
Arbor Presses
and
Angle Shears

For the prevention of accidents
insist on Version presses.

They are equipped with an
Automatic Safety Clutch

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La Salle Machine Works

3013 S. La Salle St.,
CHICAGO, ILL.

SOMETHING NEW



**Hand Power Presses, Shears, Notchers,
Punches and Dies, Etc.**

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J.F. Kidder Mfg. Co., Burlington, Vt.

Angle Iron Combination No. 455



SPEED
Notches
and
Bends
a
2-inch
by
2-inch
by
1/4-inch
Angle
Iron
in
One
Minute
Flat

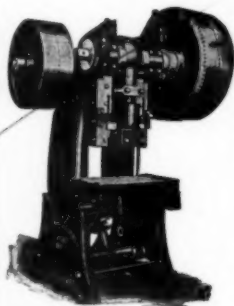
CAPACITY
Shears
Notches
and
Bends
2-inch
by
2-inch
by
1/4-inch
Angles

A unit of this Angle Iron Working Machinery completes your up-to-date shop equipment. Absolutely dependable. No changing of die. Always ready to use.

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A Quality Inclinable Press Backed by a Real Guarantee



A Loshbough-Jordan Press cannot be overloaded while operating within its rated speed. Any shaft or frame broken under these conditions and within year of purchase will be replaced gratis.

Many features for convenience and safety of operator; long, satisfactory service; quality and volume of output excellent.

*Let us tell you about them
—or better, let us send a
press on 30 days' trial.*

**Loshbough - Jordan
Tool & Machine Co.
Elkhart, Ind.**

The Only Difference

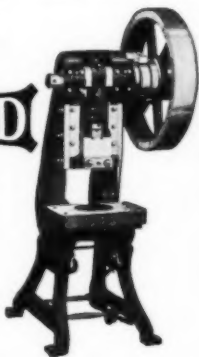
is not just price. The big thing is **service**. An investigation of the merits of

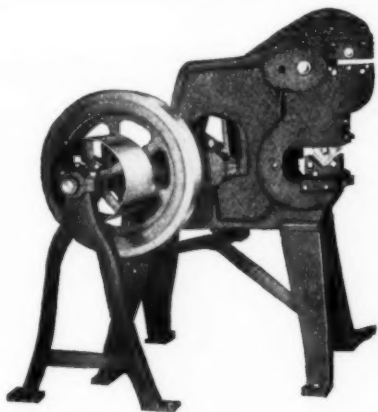
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ROCKFORD
PUNCH PRESSES

will give you a new idea of what you should get in punch press service. Definite, dependable reliability under all working conditions.

*Write today for complete
construction details.*

**Rockford Iron Works
ROCKFORD, ILL.**





No. 52—Built in Seven Sizes
BELOIT
Combined Power Punches and Shears
Series 51 to 56

The Beloit Combined Power Punches & Shears offer an unequalled combination of simplicity of design, construction, range of capacity, and moderate initial cost.

Invaluable in any plant for punching, shearing and fabricating steel bars or structurals.

An indispensable equipment for the manufacture of automobile springs and bumpers.

Tell us about your Punching and Shearing requirements. Our line is extensive, and we have a Beloit Machine for your work.

Send for our new catalogue No. 11 which describes the Beloit line of Punches, Shears and Bending Rolls.

Hendley & Whittemore Co.
100 S. State St., ❧ ❧ **BELOIT, WIS.**

Jacobs
Standard
Chuck



**No. 2-A Jacobs Chuck
is standard equipment**

Bench Drills Have

The floor drill, the bench drill, and each affords an enormous

A good bench drill handles facility and economy, and machine by saving steps and time

The "Buffalo"

—which is shown in the picture—holes up to $\frac{3}{8}$ " . It has a speed changes are easy pulleys. It is recommended for garage men, or wherever space

For full description

BUFFALO FORGE COMPANY,

*This advertisement is
in the interests of good Drills
made by the makers of the Jacobs*

Select your



ills Have A Value All Their Own

he bench drill and the portable electric each has its place,
s an economy all its own on work that is best adapted to it.

drill handles many kinds of small work with the greatest
nomy, and often it is a valuable adjunct to the larger ma-
steps and time of waiting.

"Buffalo" 10" Junior 2-Speed Bench Drill

own in the picture, is a high grade tool of this type for drilling

It has a one-piece frame and an 8" adjustable table. The
are made by a novel arrangement of two sets of cone
conded for pattern makers, tool makers, machinists and
where small accurate work is required.

Description of the "Buffalo" 10" Junior, write to—

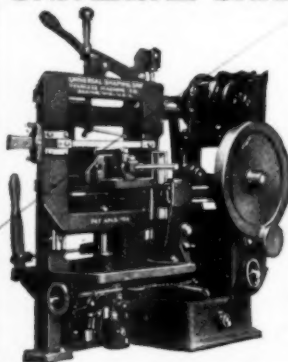
Buffalo, N. Y.

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Drilling Equipment
the Jacobs Chuck*

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Latest and Most
Efficient in Hack-saws
Faster — More Accu-
rate and Economical

REDUCES

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ELIMINATES

Semi Finishing Jobs
Cap. 6"x6" & 13"x13"

PEERLESS

HIGH SPEED HACK-SAWS
6"x6" 9"x9" 13"x16"
Sturdy--Efficient--Reliable

Peerless Machine Co.

1609 Racine St.
Racine, Wisconsin

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“QUICKWORK”

(TRADE-NAME REGISTERED THROUGHOUT THE WORLD)

ROTARY SHEARS

MADE IN VARIOUS SIZES AND STYLES

For cutting all gauges of sheet and plate up to 1 inch thick used in building Ships, Boilers, Cars, Tanks and General Plate and Sheet Metal Work. Cut square or beveled edges in straight or irregular shapes, also cut rings and discs, and cut openings without starting in from side of sheet. Leaves the metal flatter than any other Rotary or Short Straight-Bladed Shear. Cuts a clean edge that requires no finishing.

Joggling and flanging rolls can be used interchangeably with the cutters.

**Do Long Straight Cutting Faster Than Any
Other Shear of Any Kind**

One “QUICKWORK” does the work of a number of old style machines
Does it better and from two to ten times quicker

Eliminate Oxy-acetylene Cutting and Plate Planing

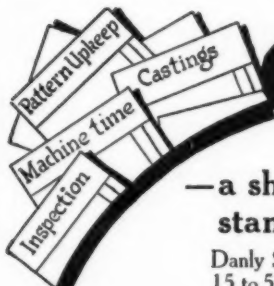
WRITE FOR CATALOG NO. 60

THE QUICKWORK COMPANY, St. Marys, Ohio, U. S. A.

Cable Address: “QUICKWORK.” All standard codes used.

New York Exhibit: Grand Central Palace.

Agent for British Isles: Oliver Machinery Co., Manchester, England.



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—a short cut to lower stamping costs

Danly Standard Die Sets cost from 15 to 50% less than you now spend to make your own. Each is a tool of precisional accuracy, combining every known refinement.

The Danly way is so convenient—two simple operations, (1) check your requirements with Danly Catalog and (2) order by style and number. Die Sets reach you ready for immediate use.

So, why bother with patterns, castings, machining, inspection, assembly—when you can save so much more the Danly way?

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and prices*

**DANLY MACHINE
SPECIALTIES, Inc.**
4913 Lincoln Ave.,
CHICAGO, ILLINOIS

*Die Sets
Dowel Pins
Leader Pins
Bushings
Clamps
Auto-Gages*



Send for Your Copy!



Nos. 1, 2 & 5

When All Is Said

and done, you cannot beat our line of tools for cutting sheet, bar or round rods in iron or mild steels.

You can use our line of

Hercules' Shears and Rod Cutters

For cutting card, straw and fibre boards, brass and copper, gold and silver sheets, and hard rubber compositions.

Catalog No. 2 on request.

W. C. & F. C. TUCKER
HARTFORD, CONN.



Plain Shears Nos. 3 & 4



Style "WC"



Style "O"



The Hinge



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Gits Gravity and Wire Wick Feed Oilers

Gravity Feed—flushes the bearing

Wire Wick Feed—gives desired prolonged feed.

Wire Wick—replaces waste or felt.

Made in Standard sizes.



Style "L"

Write for Catalog No. 20

Showing 255 full size illustrations with detail dimensions.



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GITS OIL CUPS

Oil cups for every lubricating need. State style and size in which you are interested, and we will send free samples and catalog.

GITS BROS. MFG. CO
1940 SO. KILBOURN AVE., CHICAGO



Style "T"

Strong, Durable, Dependable Hack Saws for General Work, and Low In Price



Marvel No. 1 Hack Saw

Capacity 4"x4"

A splendid, efficient saw for use where large capacity is not essential. Order now.



MARVEL No. 2 hack saw with swivel vise that swivels both ways, right or left, and has adjustable stroke.

CAPACITY: } 6"x6" on long stroke.
 } 8"x8" on short stroke.

The ideal saw for all around general work. Place your order with us today.

Both these saws can also be furnished motor driven

Armstrong-Blum Mfg. Co.
341 N. Francisco Ave., CHICAGO, ILL.

Saves Time and Material

Cuts Hardened Steel Rods or Bars, Reamers, Taps, Copper and Brass Tubing, Aluminum, Etc., Quickly, Smoothly and Without Waste

Peter Bros. Ball Bearing Abrasive Cutter

—is a big economy in the tool room or wherever such material must be cut. Has a rapid, thin, clean cut. Doesn't draw the temper, saves grinding, saves time and much valuable material. Soon earns its cost.

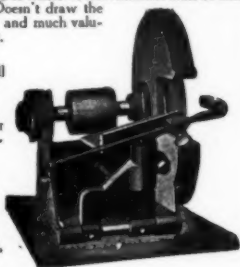
8" Size \$22.50, with C. S. Splendid for tool rooms. Cuts all high-speed steel up to $\frac{3}{8}$ " square.

12" Size \$60, with C. S. Cuts up to $2\frac{1}{4}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

15 Days' Free Trial

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PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.



This Free Chart

The Correct Guide in Cutting

Your request on your letterhead will bring this authoritative chart.

RACINE "JUNIOR"

Portable High Speed Metal Cutting Machine, easily moved to any location near electric light socket. Smooth, vibrationless, need not be bolted to floor. Normal capacity 0 to 4".

Use "Racine" H. S. Wood and Metal Band Saw Blades & "Racine" H. S. Tungsten Power and Hand Hack Saw Blades. **Catalog H.**

Racine Tool & Machine Co.
1429 Junction Av., Racine, Wis.
"STANDARD THE WORLD OVER"

times it is employed per day, and this, again, by the labor cost per hour, and you can easily estimate the saving for a month or a year.

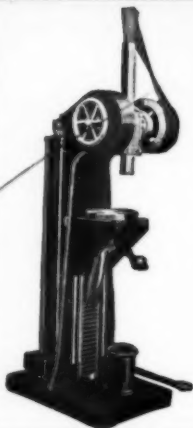
EFFICIENCY ENGINEERS have figured this out with great care, and they say that the average truck pays for itself every two or three months, *earning about 500% a year.*

I, the Towsley Truck,

—am such a good truck, because my makers believe that anything which earns 500% a year deserves to be well made. They believe it is economy to build me the best they know how—not to sell at a price, but to last the longest, to give the best service, and to earn the largest dividends. And that is why I have been adopted in so many plants as their standard truck equipment.

*Write to my makers. Tell them your requirements.
Let them help you make money. They are the—*

John T. Towsley Mfg. Co.
1036 Woodrow St., Cincinnati, Ohio



Atlas Arbor Presses

For All Forcing Operations

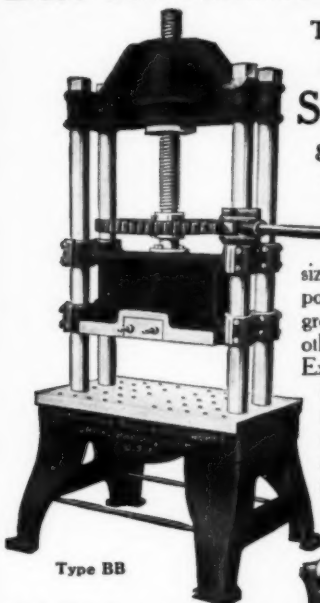
Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.

*Department B,
Kalamazoo, Michigan*

Best for Heaviest Work—



Type BB

This Up-To-Date 1-Man 4-Post Screw Press

80-Ton Pressure
20"x36" Table

We also make three smaller sizes, but this sturdy four-poster is stronger and has greater rigidity than any other press of this type. Extremely convenient—the toolmaker requires no help in handling the dies. All four sizes are real time and labor savers.

This Surface Grinder

is a revelation in quiet efficiency. Powerful, rigid and accurate. Has non-vibrating wheel. Both feeds have graduated dial.

Economy Tools. Write for Details

**JARECKI MACHINE
AND TOOL CO.**

Successor to Manhattan Machine & Tool Works
Dept. A. GRAND RAPIDS, MICH.



STANDARDIZED
"RENOLD-BOSTON"
SILENT CHAIN DRIVES



1 to 30 H. P. in Stock
Larger Drives to Order

A SUPERIOR PRODUCT

An efficiency of 99.5% is possible, but even under commercial conditions the efficiency will approximate 98% without appreciably diminishing throughout the life of the drive.

MACHINE TOOLS REQUIRE POSITIVE AND DEPENDABLE DRIVES

"R-B" DRIVES FULFILL THIS NEED

Ask for Catalog

BOSTON GEAR WORKS SALES CO.

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Second-Hand Machinery

Lists of Second-Hand Machinery, either For Sale, Wanted or For Exchange, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **\$2.50** for name and address. Minimum charge, **\$5.00**. No display permitted in this department.

Write directly to those offering the machines for sale for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool Blue Book advertisers.

FOR SALE BY

A. M. Stoehr Machinery Co.,

Blue printing and drying machine.
Boring mills, 42" Bausch, 54 & 60"
Niles, all have 2 heads, and others.
Drill presses, 1 spindle Sigourney;
12" 4-spindle Barnes; 22" Barnes,
with tap, attachment, and others.
Gear hobbers, cutters: 12" Cincinnati;
48" & 60" Gould & E., and others.
Grinders, Heald piston ring (4);
Nos. 1 and 3 LaSalle plain and
surface; 3" x 18" Norton, and others.
Hammer, 500 lb. Beaudry, & others.
Lathes, 22" to 44" McCabe: 9x42
Barnes; 14x6 Rockford, q. c. g., late
type; 18x8 Barnes heavy duty; 15
& 24 spinning, and others to 60".
Milling mchs., No. 25 Becker plain;
No. 0 Bristol hand; No. 0 Rockford
plain; No. 2 Van Norman duplex;
No. 3 Thurston dieing, and others.
Oil extractors, centrifugal, (8).
Pipe machines, 2" & 6" Jarecki.

560 W. Adams St., Chicago, Ill.

Punch and shears, No. 5 Long & A.
double end, 4" thru 4"; No. 14 W.,
double end, 15" thrt., and others.
Punch presses, No. 16 Bliss horning;
No. 3 Bliss Stiles; No. 18 Bliss,
o. b. i.; No. 4 Robinson, o. b. i.;
No. 4 Long & A. multiple punch.
Rolls, 10' Hertsch, pipe forming.
Saws, 9x9 Sterling high speed; 12x12
Racine high speed, and others.
Screw machines, Nos. 2 & 3 Foster
(12); Nos. 52 & 53 Acme; No. 0
Brown & Sharpe; 9—No. 2 Brown
& Sharpe, others plain and univ.
Screw threader, No. 10 Waterbury.
Shapers, 18" Flather, crank; 24"
Kelly, b. g.; 24" Rockford, b. g.
Shears, No. 3 N. D. splitting, 2" cap.;
Pittsburgh alligator, 1".
Welders, both spot and butt.
Wire strait'g mche., 3/16" Shuster.

FOR SALE BY

B. L. Saltzman,

524-526 W. Van Buren St., Chicago

MOTORS.

New 1/2 h. p., 1 phase, a. c., 110 volt.....	\$10.00.
New 1/2 h. p., 1 phase, rep. ind., 110/220 volt.....	32.50.
New 1 h. p., 1 phase, rep. ind., 110/220 volt.....	50.00.
New 1 h. p., 3 phase, 60 cycle.....	40.00.

LATHES.

18"x 8' Flather.	2x26 Pratt & Whitney, late model
14"x 6' Sebastian.	turret lathes, (2).
14"x 6' American.	Pratt & W. auto. screw mchs., (4).

DRILL PRESSES.

20" Milwaukee.	3 spindle Sigourney.
20" Champion.	

PUNCH PRESSES.

Punch presses, all sizes from No. 1 to No. 5.

TINNERS' TOOLS.

Brake, 8 ft., 14 gauge; and other	Folders, all sizes.
sizes.	Square shears, hand and power.

MISCELLANEOUS.

Bolt threader, Wells, single and	Miller, No. 14 Kempsmith universal.
double head.	Screw machine, No. 2 Foster.
Boring mill, 30" Colburn.	Screw machine, 3"x1 1/2" Brown &
Miller, No. 1 Kempsmith plain.	Sharpe automatic.

We have for sale a large line of woodworking and ironworking machinery.

Write us today for what you want, as we have many bargains.

SECOND-HAND MACHINERY

FOR SALE BY

Cyril J. Bath & Co., 1738 St. Clair Ave., N. E., Cleveland, O.

BOLT CUTTERS AND PIPE MACHINES.

- 1" Acme, style B, with dies, 75%.
4" Acme, single head, complete with equipment of dies and lead screws, 75%.
4" Jarecki No. 44, with dies and c. s., pipe turns, die stationary, 85%.
8" Jarecki No. 88, with dies and c. s., pipe turns, die stationary, 85%.

BORING MILLS—VERTICAL.

- 44" Niles, double swivel head, single pulley drive, 90%.
2—60" Bullard, 2-head, standard, 60%.

DRAW BENCHES.

15,000 lbs. to 25,000 lbs. Waterbury-Farrel, United Engineering and Standard; 20' draw, with 18' extensions for mandrels, heavy cast iron; 80%.

DRILLS—MULTI-SPINDLE.

- 4-spindle Barnes, all geared.
4 spindle 20" Barnes, cone drive, 85%.
4 spdl. No. 4 Colburn, arr. for motor dr., all grd., cap. about 3" in steel, 90%.

DRILLS—RADIAL.

No. 3, 10' Cleveland Punch & Shear wall radial; No. 1, 8' wall radials.

DRILLS—UPRIGHT.

- | | |
|------------------------------------|---------------------------------------|
| 20" Mechanics and Rockford. | 28" Cincinnati, sliding head. |
| 24" Rockford, as above. | 30" Aurora, sliding head, 60%. |
| 24" Kokomo hi-speed, sliding head, | 32" Cincinnati, with tap. att., 75%. |
| 75%. | 24" No. 25, Foote-Hurt pl. comp. tbl. |
| 24" Aurora, sliding head, b. g. | 24" No. 25 Foote-Burt 90%, (3). |

ELECTRICAL EQUIPMENT AND MOTORS.

- No. 9—200 k. w. General Electric generator set, 2300 volt, 60 cycle, 3 phase, to 275 d. c.
Motors, d. c., 1 to 25 h. p.
Motors, a. c., $\frac{1}{2}$ to 40 h. p.

TRANSFORMERS.

- 3 General Electric 50 kva type S 2200-220-110 2300-230-115 2400-240-120.
3 General Electric 25 kva type S 2200-220-110 2300-230-115 2400-240-120.
2 General Electric 30 kw type N Class 400-16000 Alternations Style 10235.
2 General Electric 15 kva type H Form K Cycle 60 volts, 2200-1900-110-220.
3 General Electric 667 kva 23000-23000
2 Adams-Bagnall 40 kva 60 cycle, 440-220-110, serial No. 45304 & 45304-544.
1 Adams-Bagnall 5 kva 60 cycle, 460-230-110, serial No. 41029.

FORGING MACHINES.

- 1" Ajax 75%, (3).
3 $\frac{1}{2}$ " Ajax iron body 85%.
250-ton Mesta steam hydraulic, 85%.

HAMMERS.

- 600 lb. Merrill board drop, 95%.
850 lb. Bell steam forging, 85%.
No. 8 Beaudry, power, arranged for motor drive, 80%.
No. 6 Nazel air hammer; frame cracked but patched in workman-like manner and in good operating cond., arranged for motor drive.

GRINDERS.

- No. 3 Brown & Sharpe univ., 70%.
10x36" Modern univ., and parts, 70%.
72" Diamond surface grinder, 85%.
No. 75 Heald internal, with extra spindles and c/s. 85%.
Washburn drill grinder, 70%.
No. 4 Gardner motor driven disc grinder, with discs, cup, wheel and press; 10 h. p. motor, 1200 r. p. m., 220 volt, 60 cycle, 3 phase, a. c.
Yankee drill grinder.

LATHES.

- 14"x 6' Hendey tool room, & equip.
12"x 6' South Bend, 90%.
12"x 5' Hendey tool room, & equip.
16"x 8' Lehmann.
16"x 9' Chard with 2 chucks fitted.
16"x 8' Lodge & Shipley, geared head, 90%.
18"x 9' Lodge & Shipley, 70%, (4).
18"x 10' American, 80%.
19"x 8' LeBlond friction hd., 60%.
24"x 12' Reed, belt feed, loose change gears 60%.
28"x 14' Bridgeford geared hd.; 85%.
32"x 18' Schumacher, cone head, 60%.
48"x 28' Bridgeford geared head, 9 speeds in head, taper att., 85%.

(Continued on next page)

SECOND-HAND MACHINERY

Cyril J. Bath & Co.—Continued

MILLING MACHINES.

- | | |
|--|---|
| Style "B" Gooley & Edlund, Briggs, Lincoln type, mfg., gear fd., 80%, (2). | No. 2 Cleveland full univ., single pulley drive, with heads, braces, vise and arbor, 85%. |
| 20"x7"x18" Oesterlein plain, 50%. | No. 3 Brown & S. pl., cone dr., 65%. |
| No. 0 Steptoe plain univ. heads, 90%. | No. 5 Becker vertical, old style, no countershaft, 60%. |
| No. 0 Rockford, power feed, arbor, vise, new. | No. 13 Brown & S., Lincoln type. |
| No. 1 Rockford pl. bk. geared, 90%. | 30"x10" Newton Slab Miller, arranged for motor drive. |
| No. 2 Brown & Sharpe vertical, 50%. | |
| No. 2-A Brown & Sharpe univ., 75%. | |

PLANERS.

- | | |
|------------------------------------|---|
| 22"x24"x57" Fitchburg. | 48"x48"x16" Gray, 4 hds., mtr. dr., 95%. |
| 24"x24"x6" Liberty, 1 head, new. | 60"x48"x16" Pond, 2 hds., old style, light pattern, fair condition. |
| 30"x30"x8" Gray, single head, 80%. | |
| 30"x30"x8" Gray, single head, 70%. | |

PRESSES.

- 59½" Toledo straight side, single crank, tie rod frame, bolster 40"x40", stroke 8", friction clutch, belt motor drive.
- DP-56 Ferracute straight side or trimming press; geared, arranged for side shear which has been removed and could be replaced. Stroke 5", die space 18½", weight about 15,000 lbs.
- No. 6 Niagara, 3" stroke, 9½" die space; frame has been welded; arranged for motor drive.
- Double crank Niagara, light, 5" stroke, 9" die space, 48" between housing.

PUNCHES AND SHEARS.

- No. 2 Hilles & Jones horiz. punch; 8" throat, cap. 4"x4", belt drive, 70%.
- 42" gap American ship punch, capacity 1"x1", 70%.
- 54" gap American ship punch, capacity 1"x1", 70%.

SLOTTERS.

- 12" Sellers, 75%.
- 10" Newton, with countershaft, 75%.
- 16"-18" Dill; adjusting ram, arranged for motor drive.

SAWS.

- No. 3 Ajax hot saw and burring machine, complete, 80%.
- 36" Klemm metal band saw, 75%.
- 6" used Racine hack saw, 75%.

SHAPERS.

- 15" Potter & Johnston, tilting table.
- 20" American, crank, belt.
- 21" Averbeck, no countershaft, 75%.
- 24" Walcott, crank, back geared, 90%.
- 20" Walcott, crank, back geared.

TINNERS' TOOLS.

- 39" Crimper.
- 30" Squaring shear.

TURRET LATHES AND SCREW MACHINES.

- 2"x24" Warner & Swasey.
- 21" Gisholt, standard model, 70%.
- 24" Gisholt, late model, 85%.
- No. 4 Bardons & Oliver.

WOODWORKING TOOLS.

- Emery wheel, No. 3.
- Pattern lathe, Fay & Egan 12".
- Planer, Fay & Egan, pony.
- Post drill, 15" Silver.
- Ripsaw, Fay & Egan.

MISCELLANEOUS.

- Face plate jaws for vertical boring mill, (4).
- Gear cutter, 36" Gould & Eberhardt.
- Magnetic chucks, (2).
- Riveter, Hanna I-beam frame, 18" reach, 12" gap, 10½" cylinder.

FOR SALE BY

Goldberg Bros. Surplus Stocks Co.

524 N. Capitol Ave., Indianapolis, Ind.

OIL BURNING ENGINE.

Burnoil, Deisel type, rated at 75 h. p. and develops 150 h. p., complete with 2,000 gallon storage tank, compressor and compressed air tanks, and can be seen in operation. This outfit complete costs \$7,500 new. Will accept any reasonable offer.

PUNCH PRESSES.

Also have No. 1 Toledo inclinable punch press and No. 3 Toledo inclinable punch press, just like new, with 8,000 lbs. of new dies for the manufacture of radio parts. We will quote on inquiry.

SECOND-HAND MACHINERY

FOR SALE BY

A. F. Strafer,

30 Church St., New York City

AUTOMATIC SCREW MACHINES.

Cleveland model A, 1 $\frac{1}{2}$ ", 2", 2 $\frac{1}{2}$ ", 3 $\frac{1}{2}$ ",

Fay auto., with air chuck.

4 $\frac{1}{2}$ ", 6", 6 $\frac{1}{2}$ ".

New Britain Nos. 23 & 24.

National Acme Nos. 512, 52, 53, 54.

Gridley, single spindle, 3 $\frac{1}{2}$ ".

BORING MILLS, VERTICAL AND HORIZONTAL.

51" Bullard, belt drive.

60" Niles-B.-P., vertical, s. p. d.

53" Niles-B.-P. rapid trav., a. c., m. d.

72" Cincinnati, massive type, m. d.

30" King turret head.

No. 3 Universal horizontal, s. p. d.

No. 2 Rochester, 3" bar, s. p. d.

Barrett cylinder No. 1.

DRILLS, UPRIGHT AND RADIAL.

6" Cincinnati Bickford plain.

4 $\frac{1}{2}$ " Dreeses, arranged motor drive.

6" Cincinnati Bickford universal.

No. 310 Baker heavy duty.

4 $\frac{1}{2}$ " Morris, latest type.

25" W. F. & J. Barnes, b. g., p. f.

4" Western, motor drive.

No. 1 Barnes horizontal.

No. 2 Detroit driller, 5-spindle.

26" Sibley, b. g., sliding head.

GEAR CUTTERS.

72" No. 6 Brown & S. automatic.

26" No. 3 Brown & S. automatic.

36" No. 4 Brown & S. automatic.

48"x10" Gould & Eberhardt.

GRINDERS, CYLINDRICAL

16x96 Brown & Sharpe plain.

72" Brown & Sharpe, crank-shaft.

10x24 Landis self-contained.

10x30 Webster & Perks universal.

10x36 Norton plain.

6x24 Norton plain.

12x48 Modern, new.

6x20 Fitchburg plain.

GRINDERS, SURFACE AND HOLE

No. 16 Blanchard, motor drive.

No. 60 Heald cylinder.

P. & W. vert surface, 12x36.

Springfield Brandis, 12x48.

No. 5 Diamond, 12"x72"

Abrasive Material, 22x18.

Heald No. 70 and No. 75.

No. 2 Brown & S., surface.

Bryant No. 10 and No. 10A.

Rowbottom 26" disk grinder

KEYSEATERS.

No. 7 Burr, cap. 1 $\frac{1}{2}$ ", routing attach.

No. 1 Baker, 12" stroke, 1 $\frac{1}{2}$ " cap.

LATHES, ENGINE.

44"x24" Niles-P.-B., t. g., belt drive.

36"x14" Harrington, low price.

32"x12" Mueller, low price.

28"x21" Flather, q. c. & taper.

24"x32"x16" Lodge & Shipley, q. c.

22"x12" Lodge & Shipley, g.h.s.p.d.

50" Henley pulley lathe.

20"x10" American, q. c., d. b. g.

Hendey tool room, 14", 16", 18".

18"x 8" American, q. c.

LATHES, TURRET.

No. 2-A Warner & Swasey.

24"x26" Acme flat, bar equip.

34"x36" Acme flat, chuck equip.

24"x26" J. & L., chuck & bar.

24" Gisholt, 6 $\frac{1}{2}$ " hole thru spindle.

18" Libby, s. p. d., and equipment.

24"x36" Greenlee, chuck equipment.

34"x36 Hartness, 2-spindle.

MILLING MACHINES.

Brown & Sharpe No. 3 pl. cone type.

No. 4 Cincinnati high power plain.

No. 3 Cincinnati h. p. vertical.

Ohio No. 3 universal, like new.

Brown & Sharpe No. 5 vertical

Newton 44"x12", slab.

Cincinnati 28" duplex, semi-auto.

P. & W. 2" and 4", spline.

PLANERS.

60"x60"x12" N.-B.-P., elec. rev. dr.

48"x48"x14" Patch, 4 h., motor d.

48"x48"x30" Putnam, 4 h., belt d.

28"x28"x10" American.

PUNCHES AND SHEARS.

No. 5 Quickwork rotary, mtr. dr.

No. 6 H. & J. 60" t., a. c. motor.

No. 4, H. & J. double, 48" t., a. c. m.

No. 5 H. & J., 48" t., a. c. motor.

No. 1 H. & J. double angle shear.

Lenox rotary bevel shear.

Niagara No. 307 rotary shear.

10" Ole 10 ga. squaring shear.

10" Loy & Narwarth, $\frac{1}{2}$ " capacity.

No. 6 H. & J., 32" t., belt drive.

PIPE AND BOLT CUTTERS.

Greenfield No. 734, 1 $\frac{1}{2}$ " capacity.

Greenfield No. 732, 1" capacity.

Curtis & Curtis, 2" to 10" pipe.

Jerick, 2 $\frac{1}{2}$ " pipe, a. c. motor.

SHAPERS.

25" Smith & Mills b. g. crank.

24" Potter & Johnston universal.

16" Milwaukee b. g. crank.

16" Smith & Mills.

SECOND-HAND MACHINERY

A. F. Strafer—Continued.

MISCELLANEOUS PLANT EQUIPMENT.

Air drills, Thor, \$20. to \$50.
Air hammers, 2" & 6" \$15.
Band saw, 42" American.
Brake, 3/16" x 10' Loy & Narwarth.
Brake, Tinsmith, 98".
Crane, 50 t., 86' span, P. & H., d. c.
Cylinder borers, 4-spdl, Brown & S.
Electric drill, Cincinnati 1", a. c., \$50.
Electric welding sets, G. E.

Gas engine, 15 h. p. Novo 2 c., new.
Hammers, 3000 & 3500 lb. Bell steam.
Header, Ajax, 13".
Jointer, 12" American.
Rolls, 1/2"-20" N. B. P., a. c. motors.
Saw, No. 6 Nutter & B., a. c. motor.
Saw table, universal, American.
Surfacer, single, 30" American.
Tapping attach., 1" Errington, \$75.

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

14"x 6' Hamilton.
14"x 6' Prentice Bros., s. b. g., l. c.
g., with t. a., with 8" 4-jaw ind. ck.
15"x 6' South Bend, c. r. complete.
16"x 6' South Bend, c. r. complete.
19"x 8' Prentice c. r., l. c. g., chuck.

14"x 6' Reed, r. & f. rest.
18"x 10' Star, 4-s. c., s. g., with 16"
4-jaw ind. chuck.
14"x 6' Monarch, c. r., standard.
14"x 8' Monarch, c. r., stand. pattern.

TURRET LATHES AND SCREW MACHINES.

No. 1 Warner & S. p. h., a. c. and b. f.
No. 2-A W. & S. g. h. tur. lathes.
No. 3-A W. & S. g. h. turret lathe.
No. 3, 1 1/2" Wood tilted turret.
1 1/2" Acme screw mche., p. f. to tur.
26" Gisholt heavy duty turret lathe.
2"x 24" Jones & L. g. h. flat turret.

No. 00 Brown & Sharpe auto.
No. 0 Brown & Sharpe auto. (3).
No. 2 Brown & Sharpe auto. (2).
No. 2 Warner & S. p. h. screw mchs.,
a. c. & b. f., p. f. to turret. (3).
1" Biggs, p. h., a. c. & b. f.
No. 4 W. & S., p. h., a. c. & b. f.

DRILLING MACHINES.

20" W. F. & John Barnes, stationary
head, b. g. and p. f. (2).
Henry & W. sgl. sp., h. s., b. b., ck.
No. 1 Minster high speed heavy
duty, with pump.
25" Superior, sliding hd., b. g., p. f.,
with tapping attachment.
24" Baker heavy duty.

4-spindle Leland-Gifford, h. s., b. b.,
with p. f. to each spindle.
6' arm Western radial, with tap. att.,
arranged for motor drive.
20" W. F. & John Barnes, stationary
head, p. l. f., (2).
21" Superior, stationary hd., p. l. f.
20" Superior, stationary hd., p. l. f.

MILLING MACHINES.

No. 7 Becker plain.
No. 26 Becker pl., without bk. grs.,
with power fd., pump and tank.
No. 1 1/2 Rockford plain, with div. hd.
No. 24 Ohio plain b. g. complete.

No. 1-V Brown & Sharpe plain.
No. 22 Garvin, vertical spindle.
Potter & Johnston dbl. table auto-
matic production miller.

GRINDERS.

Type "DE" Hisey-Wolf internal.
No. 11 B. & S. plain grinders. (2).

Plain emery wh'l stand with column.
No. 1 W. & M. univ. cutter & reamer.

SHAPERS AND PLANERS.

22"x 22" x 5' Putnam planers (2).
42"x 49" x 10' Sellers planer.

36"x 36" x 12' W. & P., two rail heads.

METAL CUTTING TOOLS AND SQUARING SHEARS.

Higley cold saw.
3" new Davis cutting-off machine.

36" Niagara foot power squ. shear.
30" Niagara foot power squar. shear.

GEAR CUTTERS AND HOBBERS.

26" & 36" No. 3 Brown & S. auto.
No. 13 Brown & Sharpe auto.

No. 12 Barber-Colman hobbers.

HAMMERS.

Coffman post pwr. dr. hammer, 25 lbs.

Quickwork body hammer.

MISCELLANEOUS.

Bench tapper, Montgomery, 1" cap.
Bench tapper, Hubbell, 1" cap.
Bolt cutter, 2" Morgan.

Broaching machine, Lapointe No. 1 1/2.
Pipe mche., No. 1, 1/2" to 2" Williams.
Pipe mche., No. 3, 1" to 6" Williams.

SECOND-HAND MACHINERY

FOR SALE BY

Eastern Machinery Co.,

408 E. Pearl St., Cincinnati, Ohio

MILLING MACHINES.

No. 3 Brown & Sharpe, universal, cone type, complete.
No. 3A Brown & Sharpe universal, single pulley, complete.
No. 2 R. K. LeBlond high power univ., cone type, complete.
No. 2 Hendey-Norton universal, cone type, complete.
No. 2 Garvin universal cone type, complete.
No. 3-B Brown & Sharpe plain, single pulley.

No. 3 Cincinnati plain, cone type.
No. 2-B Brown & Sharpe plain, single pulley.
No. 3 Kempsmith plain, cone type.
No. 2 Cincinnati plain, cone type.
No. 20 Oesterlein (Ohio) universal, cone type, complete.
No. 9 Cincinnati plain, cone type.
No. 6 Whitney hand miller.
No. 3 Brown & Sharpe vertical, single pulley.
No. 5-C Becker vert., cone type.

LATHES.

12"x 6' Hendey tool room, with taper attach and collets.
14"x 6' Hendey tool room.
14"x 6' Lodge & Shipley, q. c.
16"x 6' American Tool Works high duty, geared head, q. c.
16"x 8' Hendey, q. c., all geared head, single pulley.
17"x10' Greaves & Klusman, standard change gear.
18"x 6' National, q. c., single pulley, geared head.
18"x 8' Prentice Bros., q. c., single pulley, geared head.
18"x 8' Hamilton, standard change gear, with taper.
20"x14' R. K. LeBlond standard c.g.

18"x10' Greaves & Klusman, q. c. g. latest type.
20"x10' American Tool Works, q. c., all geared head, single pulley.
22"x10' Hamilton, semi-quick chg. gr.
24" raised to swing 30"x14' LeBlond, standard change gear.
25"x12' R. K. LeBlond heavy duty, quick change gear.
27"x14' R. K. LeBlond, q. c. g.
27"x18' R. K. LeBlond heavy duty, quick change gear.
30"x12' Lodge & Shipley, q. c. g.
30"x16' Houston, Stanwood & Gamble, quick change.
36"x22' Putnam triple geared, semi-quick change gear.

RADIAL AND UPRIGHT DRILLS.

5' Niles-Bement-Pond full universal radial, single pulley, gear box.
5' American Tool Works plain radial, gear box drive.
4' Western plain radial, gear box drive.
3' Western plain radial, gear box drive.
24' Cincinnati-Bickford plain radial, gear box drive.
25" Kokomo upright, sliding head, back geared, power feeds.
24" Cincinnati-Bickford upright, gear box drive, tapping attachments.
26" W. F. & John Barnes upright, sliding head, back geared, power feeds.
22" W. F. & John Barnes upright, sliding head, back geared, power feed.
20" Barnes all geared gang drill, with pumps.
No. 25 Foote-Burt heavy duty vertical, gear box drive.
2-spindle Allen high speed ball bearing sensitive.
Avey high speed single spindle ball bearing sensitive.

MISCELLANEOUS.

Air compressor, 12"x10" Ingersoll-Rand class E R-1, belted drive.
Air compressor, 8"x8" Chicago Pneumatic Tool Co., belted drive.
Bolt cutter, 1" Acme, single head.
Bolt cutter, 1" Acme, two spindle.
Boring mill, vertical, 24" Bullard, New Era type, with turret and side head.
Boring mill, vertical, 30" Colburn, with turret head.
Boring mill, horizontal, No. 21 Lucas, gear box drive, with 2 1/2" bar.
Brake, hand power, 12" Dries & Krump.
Grinder, No. 60 Heald cylinder, complete equipment.
Grinder, No. 70 Heald internal.
Grinder, No. 3 Oakley universal tool and cutter, with power feed.
Grinder, 6"x18" Landis plain, self-contained.
Pipe machine, power, 3" Bignall & Keeler, single pulley, gear box drive.
Planer, 36"x36"x14" American Tool Works, belt drive, two heads.
Press, power, No. 5A Toledo, geared, open back inclinable.
Press, power forcing, 15-ton Lucas, high power.
Punch & shear, dbl. end, No. 17 Williams-White, cap. 1 1/2"x1 1/2", with 25" throat.
Shaper, 16" Smith & Mills, crank, practically new.

SECOND-HAND MACHINERY

Eastern Machinery Co.—Continued.

MISCELLANEOUS—CONTINUED.

Shaper, 21" Averbeck, geared crank, practically new.
 Shaper, 24" Gould & Eberhardt, back geared crank, high duty.
 Shaper, 24" American Tool Works high duty, bk. grd. crank, practically new.
 Shear, power squaring, 42" Niagara, cap. 18 gauge and lighter.
 Turret lathe, No. 4 Millholland universal, geared head.
 Turret lathes, No. 3-A W. & S. univ. hollow hex., grd. hd., chucking equip.
 Turret screw mch., No. 6 Warner & Swasey, with power feed to cross slide.
 Welder, butt, National, capacity up to $\frac{7}{8}$ " diameter.

And many others. Send for our complete list of bargains.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

MILLING MACHINES.

No. 3 Ingersoll vertical. No. 3 Kempsmith plain.
 No. 3-H LeBlond universal. Gooley & Edlund production miller.
 No. 2 LeBlond plain, (2).

SHAPERS.

18" Hollingworth b. g. crank. 16" Steptoe b. g. crank.
 17" Smith & Mills b. g. crank. 14" Springfield crank.

LATHES.

32"x10' LeBlond, qk. change gear. 16"x 8' Flather, quick change gear.
 26"x10' Niles, quick change gear. 16"x 6' Monarch, q. c. g., taper att.
 24"x12' South Bend, taper att. 16"x 6' Pratt & Whitney, taper, relieving, draw-in collet attach's.
 20"x10' American, q. c. g., crank shaft. 14"x 6' Hendey, q. c. g., taper att.
 20"x10' Boye & Emmes, qk. ch. gr. 13"x11' Sebastian, plain change gr.
 20"x 8' Springfield. 13"x 5' Vernon, q. c. g., new.
 16"x 8' Pratt & Whitney, q. c. g., taper, relieving attachment. 20" to 24" Spinning lathes.

BORING MILLS, DRILLS.

36" Bullard rapid production. Single spindle Holehog.
 36" Fosdick radial, gear box. 25" Kokomo high speed.
 36" Silver radial, gear box. 2, 3, 4, 5 & 6 spd. Aveys, $\frac{1}{2}$, $\frac{3}{4}$, 1" cap.
 48" Bickford radial. 1 & 2 spd. Barnes h.sp., camel back.

BOLT CUTTERS.

1" Landis, double head. 4" Geometric, single head.
 1 $\frac{1}{2}$ " Geometric, single head. 2" Murchey, double head.

PRESSES.

No. 1 Bliss $3\frac{1}{2}$ " & 7" toggle. No. 6 Bliss Stiles, solid back.
 No. 7A Niagara b. g. inclinable. No. 31 Toledo, solid back.
 No. 5 $\frac{1}{2}$ Walsh inclinable. No. 32 Toledo, solid back.
 No. 3 Rockford inclinable. No. 3 Blake & Johnson arch presses.
 No. 5 Walsh inclinable. Variety smaller size presses.

GRINDERS.

No. 2 Brown & Sharpe universal. No. 3 Wilmarth & M., magnetic cks.
 No. 1 Wilmarth & Morman univ. Nos. 2 & 3 La Salle plain.
 10" Norton universal. Fitchburg, Landis, Greenfield, etc.
 No. 23 Brown & Sharpe cylinder. Besly, Gardner 18", 26", 40" disc.
 No. 11 Brown & Sharpe plain.

SCREW MACHINES AND TURRET LATHES.

Jones & Lamson, dbl. spindle, (3). Nos. 1, 2, 3 & 5 Bardons & Oliver.
 Greenlee, $3\frac{1}{2}$ " capacity. 1" to 14" Acme and Warner & S.
 Nos. 0, 1, 2, 3, 4 & 6 Foster. No. 6 Foster power, long, & cross fd.

MISCELLANEOUS.

Chucks, 300 new and used, all sizes. Rools, 10"x4"; 7"x36 steel corrugat'g.
 Circle cutters and shears. Shear, No. 2 Niagara squ., $\frac{3}{16}$ " cap.
 Drill presses, large stock new. Spot welders, Toledo and Thomps'n.
 Hammer, 60 lb. Bradley. Time clocks, Periodograph, Stromberg.
 Keyseater, No. 2 Mitts & Merrill.
 Keyseater, No. 2 Davis.

Keyseaters, riveters, tapping machines, tapping chucks, broaches, bead-ers, vises, time clocks, cutters, reamers, etc., etc., at money-saving prices.

SECOND-HAND MACHINERY

FOR SALE BY

Eastern Machinery Co., - 408 E. Pearl St., Cincinnati, Ohio

CYLINDER GRINDER.

No. 55 Heald cylinder grinder, equipped with 18" spindle; full factory equipment; new, at a sacrifice price.

FOR SALE BY

Clinton Machinery Co., 128 South Clinton Street, Chicago, Ill.

LATHES.

17"x8' Sidney, q. c. g., taper attach. 11"x5' Rockford, complete, (2).
14"x6' Hendey, q. c. g., taper attach. 15"x5' Worcester, complete.
14"x7' Hendey, q. c. g., taper attach. 10"x4' Myers, new.

SHAPERS.

24" Cincinnati, b. g. crank. 16" Steptoe, b. g. crank.
17" Smith & Mills, b. g. crank. 16" Garvin, plain crank.
16" Gould & Eberhardt, b. g. crank. 6" B. & P., with 10" traveling hd.

PUNCH PRESSES AND SQUARE SHEARS.

No. 4 Rockford, inclinable. No. 54 Walsh, inclinable.
No. 316 Bliss power square shear, No. 411-H Toledo, 11 gauge, 10' power square shear.
66" blade.

DRILL PRESSES.

20" Mechanics, b. g., p. f. 20" Rockford, wheel & lever feed.
21" Mechanics, b. g., p. f. 20" Superior, wheel & lever fd., (2).
22" Superior, b. g., p. f., (2). 30" Sibley, b. g., power and automatic feed, tapping attachment.
21" Prentice, b. g., p. f.

SCREW MACHINES.

No. 4 W. & S., p. f. to tur., & cut-off. No. 22 Garvin, hand.

MISCELLANEOUS.

Bolt cutters, sgl. hd., 4" Geometric (2). Gear cutter, 36" No. 4 Brown & S., 95% new, will sell very cheap.
Grinder, 18" Besly, disc.

Arbor Presses, Punches, Chain Hoists, Electric Motors.

FOR SALE BY

The O'Brien Machinery Co.,

113 N. Third St., Philadelphia, Pa.

Bending rolls, 12' Kling, motor dr., 15" & 11" dia. rolls, cap. 4" plate.

Drill, 32" Aurora, motor driven, tapping attachment.

Grinder, 6"x32" Norton plain.

Hammer, 100 lb. Massillon, steam.

Lathe, 22"x11' Lehmann, geared head, taper attachment.

Lathe, 24"x12' Schumacher & Boye.

Lathe, 26"x21' Whitcomb-B., mtr. dr.

Miller, No. 2 Cincinnati plain, geared head, single pulley drive.

Miller, No. 3-H LeBlond plain.

Miller, No. 3-B Hendey plain.

Miller, No. 4 LeBlond plain, heavy duty.

Miller, No. 2 Rockford universal.

Miller, No. 3 Kempsmith universal.

Milling and drilling machine, No. 3 Knight vertical.

Pipe machines, 2", 4", 6", 8" & 12"

Oster, Cox, Eaton-Cole & Burnham and Jarecki makes, belt or motor driven, complete stock.

Planer, 36"x36"x12" Woodward & Powell, motor driven, 3 heads.

Presses, Nos. 18, 19 and 20 Bliss.

Planer, 54"x54"x14" Pond Machine Tool Co., two heads.

Press, No. 54 Toledo gr. str. side.

Punch, No. 2 H. & J., sgl. end, 30" thrt., motor dr., cap. 1 1/2" thru 1".

Punch, Rock River, single end, 42" thrt., motor dr., cap. 1 1/2" thru 1".

Punch and coping machine, 36" cap., Long & A. type B, motor driven.

Punch and shear, No. 3 Hilles & J., dbl. end, motor dr.; punch end, 42" thrt., cap. 1 1/2" thru 1"; shearing end, 36" thrt., cap. 1" plate, 2 1/2" round, 7"x1 1/2" flat, 5"x5"x1/2" angle.

Radial drill, 36" Gang.

Radial drill, 5' Mueller.

Radial drill, 5' Dreeses, motor driven.

Shapers, 12", 14", 16", 21" and 24" stroke, assorted makes.

Trimming press, No. 754 Bliss, straight side, with side shear attachment.

Turret lathe, No. 64 Bardons & Oliver, wire feed, cabinet base.

SECOND-HAND MACHINERY

FOR SALE BY

Russell Machine Co., 28th St. & A. V. R. R., Pittsburgh, Pa.
LATHES.

50"x49'6" Johnson, triple geared.
50"x25' Putnam, geared head.
30"x13' New Haven.
28"x14' Putnam, h. s.
28"x10' Whitcomb-Blaisdell.
26"x12' Pittsburgh, dbl. b. g.
26"x20'6" Putnam, b. g., c. r.
26"x10'6" Walcott, q. c. g.
24"x16'6" Johnson lathe.
24"x14' Rahn-Mayer-Carpenter.
19"x10' LeBlond, motor drive.
19"x8' Bullard, c. r., b. g.
18"x8' Mueller, q. c. g.

18"x8' Sidney, q. c. g., d. b. g.
16"x10' Bradford, t. a.
16"x6' Hendey, tie bar.
16"x6' Blaisdell, h. s.
16"x6' Cleveland, q. c. g., new.
16"x6' South Bend, h. s., t. a.
15"x8' Schellenbach, d. b. g., h. s.
16"x5' Fox turret with chasing bar.
3"x36" & 24"x24" J. & L. flat turret.
24"x6' Gisholt tur., 64" h.s., m.d.
1"x7' Acme screw machine.
10"x4' Blount speed lathe.
12"x48" speed lathe.

PLANERS AND SHAPERS.

24"x24"x8' Chandler planer.
32"x32"x8' New Haven, 1 head.
48"x48"x16'2" Cleveland open side
planer, 1 side & 2 rail heads.
48"x48"x22' Pond planer, 4 heads.

120"x120"x25' Sellers planer, 4 heads.
16"x20" G. & E., b. g. cr.
24" Kelly b. g. cr. shaper.
24" Queen City, b. g. cr. shaper, m.d.
32" Smith-Mills b. g. crank.

DRILLS AND BORING MILLS.

12" Washburn sensitive.
20" Champion, new, pl. w. & l.
22" Hamilton, b. g.
24" Aurora, b. g.
36" Prentice, sliding head.
40" New Haven, b. g. drill.
4' Dreses, 4' Bickford radial.
64" & 8" Pond radial drills.
24" Canedy-Otto post radial.

1" Champion post drill.
30" W. & S. boring mill.
36" Bridgeport boring mill.
42" & 50" Bullard bor. m., 2 heads.
42" Bullard New Era boring mill.
38", 51", 90", 10' Niles bor. mills.
84" Pond boring mill.
Beaman & Smith post type hor. boring
mill, 34" bar, m. d.

PUNCHES, SHEARS,

PRESSES AND ROLLERS.

Fischer s. e. punch & shear, 1"x1".
King Bridge Co. s. e. punch, 30" thr.
50" throat Reade sgl. end punch and
shear; massive construction.
Covington No. 2 s. e. punch & s., 1x1"
Cleveland s. e. punch & shear, 4"x4".
L. & A. punch & shs. Nos. 6, 7.
Mahoning punch & shear, 32" thr.
Plunger type punch & shear, 9" thr.
six 1/2" holes thru 1/2" plate and 6x4"
at one operation.

Garrison plate shear, cap. 3"x81", m.d.
Waterbury-Farrel rotary sh., 14" thr.
Hilles & Jones gate shear, capacity
84x1", motor drive.
Pusey-Jones guillotine shear, 3" cap.
Hilles & Jones guillotine shear, 2 1/2".
Niagara pr. sq. shears., 36".
Toledo No. 52 geared arch press.
No. 56 dbl. housing knuckle press.
Stiles No. 3 inclinable press.
Baird No. 1 foot power presses.
Baird Nos. 3 & 1 open back presses.
Straight-side punch press, 4" str.
Caldwell 200 ton hydraulic wheel
press, 38" between bars, m. d.

Lewis alligator shear, cap. 1 1/2".
Carlin alligator shear, 1 1/2" capacity.
Carlin alligator shear, 2 1/2", m. d.
Canton alligator shear, 3", m. d.

MISCELLANEOUS.

Air compressors: Chicago 19x12x14;
Chicago 9"x11".
Blowers, Buffalo No. 8 vol.; Stur-
tevant No. 8.
Bulldozers, W.-W. Nos. 2 & 4.
Cold saw, Wagner, size 18 type 3.
Cranes, portable 2 & 2 1/2 ton.
Engine, gas, 15 h. p. Fenner.
Forge, No. 41 Champion new.
Forge, Buffalo 32 H.. with motor.
Gear cutters, No. 13 B. & S.
Gear hobber, 160"x32", for high
speed gears; will cut spur, worm
and spiral gears; m. d.
Grinder, Ott 6"x6" internal.
Grinder, Ott 5"x18" plain.
Grinder, Landis No. 3 universal.
Grinder, Plymouth No. 17.

Grinders, Norton & W.-P. 24"x4".
Hammers, 25, 60 and 80 lb. Bradley
helve; 75 & 100 lb. upright strap.
Hammers: 1500 lb. Bement st. dr.;
800, 2000 lb. B-M st. forging.
Millers: Cincinnati No. 2 high duty
universal; Cin'ti No. 2-S univ.;
Hendey-Norton No. 3 universal;
B. & S. No. 2-B, Cincinnati No. 3,
and Garvin No. 12 plain; Briggs
high duty production; Cincinnati
No. 2 vertical.
Motors, Fairbanks-Morse, 20 h. p.,
3 phase, 60 cycle.
Pipe machines, Merrill 4".
Pipe mchs., Eaton-Cole-B., 4" & 8".
Slotter, Niles 15".
Upsetters, Acme, 1" steel bed.

SECOND-HAND MACHINERY

FOR SALE BY

Clark Machinery Co., 1235-45 St. Clair Ave., Cleveland, O.

Compressor, 6" x 8" Chgo. Pneumatic	Miller, No. 20 Ohio universal.
Drill, Avey 2-spindle.	Miller, No. 2 Becker vert. cal.
Lathes, 16" x 8' Lodge & Shipley.	Planer, 42" x 42" x 8' Gray.
Lathe, 17" x 8' Sidney, q. c., d. b. g.	Screw machine, No. 6 Foster.
Lathe, 14" x 8' Hendey, q. c., tap. att.	Screw machine, No. 2 W. & S.
Miller, No. 2 H. & S. universal.	Screw machine, No. 4 W. & S.

FOR SALE BY

Lynd-Farquhar Co., 423 Atlantic Ave., Boston, Mass.

Not just "used tools", but particularly good values.
 Automatics, first-class No. 56 National Acme; have seen very little service, (2).
 Bolt heading, upsetting and forging machine, 1 1/2" Acme Machinery Co's all steel, with side shear; gilt-edge condition.
 Grinding machines, plain cylindrical, 3" x 18" Norton No. 4, self-contained, rebuilt, and complete equipment, at a gift price, (2).
 Grinders, rotary surface, 8" Heald No. 20, practically new, with magnetic chucks and special automatic hopper feed fixtures for grinding rings, an exceptional value, (2).
 Grinder, plain cylindrical, Landis 10" x 24" s. c., latest pattern, very little service, complete equipment.
 Grinder, a splendid No. 6 Besly 18" ring wheel grinder, 90 per cent new, arranged for wet grinding; special fixtures for holding piston rings; a lot of equipment.
 Miller, No. 2 Becker vertical, special ball bearing spindle construction for 12,000 r. p. m., practically new.
 Miller, latest type No. 13 Garvin plain, cone drive, not back geared, very little used.
 Miller, No. 2-A Garvin universal, complete, brand new.
 Planer, 36" x 36" x 12' Fitchburg, heavy pattern, two heads on cross rail, two side heads; a heavy, powerful planer.

FOR SALE BY

W. P. Little Co., West 9th & Front Sts., Cleveland, Ohio

RADIAL DRILLS.

3' Prentice, plain. | 4' W. E. Gang, plain.

MULTIPLE DRILLING MACHINES.

20" 4-spindle Rockford, with automatic approach and return feed, (2).

LATHES.

14" x 6' LeBlond, q. c. g., c. r. | 16" x 6' Bradford, q. c. g., & t. a.
 16" x 6' LeBlond, q. c. g., c. r. | 18" x 8' Porter, d. b. g.

MILLING MACHINES.

No. 0 Kempsmith universal. | No. 1 Kempsmith pl., with div. hd.
 18" Cincinnati b. g. | No. 2 Cincinnati pl., with div. hd.
 No. 15 Brinnard. | U. S. hand miller.

PUNCH PRESSES.

No. 2 Bliss Stiles pattern. | No. 24 Cleveland horning.
 No. 14 Williams & White. | Z. & H. double acting cam drawing.
 No. 3 Long & Allstater, dbl. end. | 30" geared, arch.

GRINDERS.

No. 6 Bryant internal. | No. 3 Modern universal.
 No. 75 Heald internal. | No. 6 Rivett internal.

RADIAL TAPPING MACHINE.

1/2" Rickert & Shafer radial tapping machine, motor driven.

MISCELLANEOUS.

Bolt cutter, 2" Foote-Burt.	Keyseater, No. 0 Mitts & Merrill.
Bolt cutter, 2 1/2" National.	Slotter, 8", rotary table.
Boring machine, 30" Colburn vert.	Spinning lathe, 22" Prybil.
Boring mche, No. 3 Marvel cylinder.	Spinning lathe, 28" Prybil.
Hammer, 50 lb. Bradley upright.	Spline miller, 1/2" Pratt & Whitney.
Hammer, 250 lb. Morgan steam.	Turret, No. 2 Bardons & Oliver.

SECOND-HAND MACHINERY

FOR SALE BY

Marr-Galbreath Machinery Co.,

Air compressor, 42"x48" Curtis.
Bolt cutters, Acme 6", Landis 24".
Bolt cutter, 2" Acme, sgl. 24" head.
Bolt cutter, 2" Acme, dbl., Landis hd.
Bolt cutter, 1 1/2" Acme, triple head.
Boring mill, No. 5 B. & S., post.
Boring mill, Rockford horiz., 2" bar.
Boring mill, No. 31 Lucas hor., 3" bar.
Boring mill, Betts horiz., 3 & 4 bars.
Boring mill, 10' Niles, m. d.
Boring mill, vertical, 72" Betts.
Boring mill, 54" Bullard "Maxi-mill," m. d. (2). (195¢).
Boring mill, 52 & 42" King, sgl. vul.
Boring mill, 40" sgl. hd., light \$175.
Brake, 8' Chicago, for 18 gauge.
Brake, 8' double truss, hand.
Brake or press, 10' Robinson, toggle.
Bulldozers, Nos. 6, 8 & 9 W. W.
Compressor, 1170 cu. ft. Chicago, belt or m. d. (A-1).
Compressor, 14"x10"x12", Ingersoll.
Drills, radial, 3' & 3 1/2' Bickford, t. a.
Drills, radial, 3' Prentice; 3' Fosdick.
Drill, radial, 2 1/2" Taylor-Fenn, sens.
Drills, 36" Hoefler; 24" Aurora, s. h.
Drill, 13" Washburn sensitive.
Drills, 21 and 20" Barnes, hand and lever feed.
Drill, 28" Barnes, sliding hd., b. g.
Drill, 20" Barnes, all grd. (enclosed)
Drill, 20" Rockford, sl. hd., q. c. g.
Drill, 22" American, hand & lever fd.
Drills, No. 2 Colburn, mfg. type. (4).
Drill, Allen, 20" sensitive, 4-srdl.
Drill, heavy duty, 24" Foote-Burt.
Exhausters, No. 8 Buffalo.
Exhausters, No. 28 Sturtevant, dbl.
Forging machines, 1 1/2, 2, 2 1/2, 3 & 4".
Gear hobber, No. 12 Barber Colman.
Grinder, No. 60 Heald internal.
Grinder, Gardner, 16" disc & ring w.
Hack saw, No. 7-K Atkins, power, motor drive.
Hack saws, 4", 6" & 8" belted or m. d.
Hammers, 80 & 100 lb. Bradley helve.
Hammer, 600 lb. Bement, sgl. leg st.
Hammers, steam drop, 1500, 3000 lb.
Hot saw & burring machine, Acme.
Keyseater, No. 1 Baker, for motor.
Lathe, gap, 36/60"x12/20" Harringt'n.
Lathe, 42"x32" Am., grd. hd., m. d.
Lathe, 36"x16" American, g. h., t. a., a. c. motor. (98¢)
Lathe, 30"x14" L. & A., q. c. g., t. a.
Lathes, 27"x10" Lodge & S., q. c. g.
Lathes, 25"x12" LeBlond, q. c. g., t. a.
Lathes, 24"x10" Reed, turret on bed.
Lathes, 20"x10" Schellenbach, gd. hd.

127 Water St., Pittsburgh, Pa.

Lathe, 18"x10' Porter, s. b. g., c. r.
Lathe, 18"x8 1/2" Hendey, pl. change.
Lathes, 18"x10' L. & S. & LeBlond.
Lathe, 18"x10' Monarch, q. c. g.
Lathe, 18"x8" Am., q. c. g., tap. att.
Lathe, 16"x8" Bradford, pl. change.
Lathe, 14"x6" Monarch, q. c. g., t. a.
Lathe, speed, 11"x4' Prentiss, t-rest.
Miller, bench, No. 1 Burke, hand.
Miller, vertical, No. 2 Brown & S.
Miller, No. 3 1/2 Fox, hand, 24"x6"x14 1/2".
Miller, No. 0 1/2 Cin. pl., 18"x6"x15".
Miller, No. 1 1/2 Rockford, plain.
Miller, No. 3 Cincinnati, plain.
Miller, No. 3 H LeBlond, pl. ind. hd.
Miller, No. 2 Kempsmith universal.
Nuttapper, 4" Acme 6-sp. semi-auto.
Pipe machine, 6" Williams, mtr. dr.
Pipe mchs., 4" Oster, belt drive.
Pipe machine, 8" Saunders.
Planer, 60"x60"x12" Pond, 3 hds., m. d.
Planer, 48"x48"x16" D. & H. o. s.
Planer, 42"x42"x12" Betts, 1 head.
Planer, 42"x36"x20" Cin'ti, 4 heads.
Planer, 30"x30"x 8" Niles, hy., 1 hd.
Planer, 28"x28"x 6" Gale, 1 head.
Planer, 26"x26"x8" Niles, 1 head.
Planer, 24"x24"x 5" New H., 1 hd.
Press, No. 27 Bliss, horning, b. g.
Presses, No. 7 1/2 Bliss, tie rod 6" st., s. b. g., m. d., (2).
Presses, No. 61 Bliss, plain.
Press, No. 56 Toledo, pl. trim., 3" str.
Press, No. 11 Perkins, pl. trim., 4" str.
Punch, Cleveland 7" tht, cap. 3"x3".
Punch, 15" thts., dbl., 1x1", arch, jaws
Punch & shear, H. & J., 72" tht., cap. 1 1/2"x1 1/2", motor drive.
Riveter, 3" Shuster, style A.
Rivet hammers, 3-A, 4-A, 5-A, hi. sp.
Rolls, bending, 16" H. & J., cap. 4", extension for 24", with motors 220 v., d. c. (near new).
Saw, No. 11 1/2 Higley, cap. 4" blade.
Saw, Gorton, size 2B internal tooth.
Shaper, 21" American, b. g., crank.
Shaper, 20" Cin'ti, b. g., crank.
Shaper, crank, 17" Smith & M., s. g.
Shaper, 28" Hendey, pillar type.
Shaper, 18" Barker, crank.
Shear, 60"x16 ga. 18" gap, power.
Shears, Quickwork No. 6, m. d.
Shear, rotary, 4" Lennox, 8" gap.
Shear, plate, 9"x8", cap. 15", m. d.
Shears, plate, 10" & 7" x 1 1/2" L. & A.
Shear, squaring, 42" Niagara, ft. prw.
Slotters, 16" & 18" Bement-Miles.
Slotter, 15"-18" Dill, a. c. mtr.
Turret lathe, No. 1 Bardons & Oliver.

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SECOND-HAND MACHINERY

FOR SALE BY

The Patterson Tool & Supply Co.,

Dayton, Ohio

Drill, 3" bench, new, mtr. dr., \$42.50.
Drill, 2-spindle Demco, new, \$250.
Lathe, bench, 3 Cataract, used. 175.
Lathe, 11"-16"x40" Artisan, new 170.
Lathe, stud, 16"x8" Reed, used. 75.

Lathe, 40"x20" Fifield, used...\$1500.
Saw, circular, 34" Swind, new. 150.
Saw table, Amer. Handy new. 65.
Shaper, 24" P. & J., m. d., used 800.
Shaper, 24" Columbia, b.g., new 1250.

FOR SALE BY

Brown Machinery Co.,

2323 N. 9th St., St. Louis, Mo.

Boring mill, No. 10 Beaman-S., hor.
Boring mill, 60" Sellers, 2 heads.
Boring mill, 42" Bullard.
Brake, D. & K. 8', 16 ga. cap.
Die sinker, No. 3 Jackson.
Drill, 24" Aurora, sl. hd., b. g., p. f.
Drill, 24" Cincinnati, sl. hd., b. g., p. f.
Drill, 26-spindle Baush, No. 3.
Drill, No. 1 Barnes hor. radial.
Drills, rad., 3" American & Mueller.
Gear hobber, No. 1 Farwell.
Gear shaper, Fellows 36".
Grinders, No. 6 & No. 14 Besly.
Grinders, 5x18 Ott; 10x36" Norton.
Grinder, No. 12 Brown & Sharpe.
Grinder, No. 1 B. & S. universal.
Hammer, Dupont, size D.
Lathes, 14", 16", 20", 26" Walcott,
d. b. g. q. c. g.
Lathe, 18"x10" LeBlond.
Lathe, 17"x 6" Cincinnati, semi q. c.
Lathe, 20"x8" Reed.
Lathe, 26"x14" Hamilton.

Miller, No. 3 B. & S. universal.
Miller, 1-B Fox horizontal.
Miller, No. 4 Hendey, b. g.
Miller, No. 3 Becker.
Miller, No. 5B Becker-B.
Miller, 8", P. & W., automatic.
Planer, 30"x30"x8" Pease.
Planer, 54"x54"x12" Pond.
Press, embossing, Roover.
Presses, L. & J. Nos. 1, 2, 3.
Press, toggle, Robinson 10".
Profilers, two-spindle, Putnam,
Reed-Prentice.
Punch, Ryerson-Kling rapid action,
18" throat, 1/2 in. 1/2.
Roll, plate straightening, No. 0
Hilles & Jones 4'8"x1/2".
Shear, 8' Niagara, foot power.
Shears, 134 Marshalltown rotary, 1/2".
Shear, No. 13 Pettin, rotary, 14 ga.
Stake riveter & punch, No. 3 Hilles
& Jones, 5' throat.

Many other bargains. Write us about your requirements.

FOR SALE BY

McCoy-Brandt Machinery Co.,

210-14 Penn Ave., Pittsburgh, Pa.

Air compressors, belted, 242 cu. ft.
Air compressors, steam, 909, 2052
and 2200 cu. ft.
Bolt cutter, 24" Landis, single head.
Boring mill, 10" Niles, 2 heads.
Bulldozers, Nos. 2, 4, 6 and 30.
Drill, 20" Buffalo, b. g.
Drills, radial, 5" Prentice, m. d.
Flanging mch., McCabe, cap. 1/2" plate.
Forging machines, 2", 3", 4" and 5".
Grinders, 12"x48" Cincinnati plain.
Grinder, 10"x72" Norton pl., m. d.
Grinder, Gisholt universal tool.
Grinder, Diamond 36", wet tool.
Grinder, 10x32 Ott universal.
Grinder, No. 4 Gardner double disc.
Lathes, 14"x 6" Hendey, grd. hd., m. d.
Lathe, 17"x12" LeBlond, g. h., t. a.
Lathe, 19"x14" LeBlond, g. h., turn.
Lathe, 20"x10" Monarch, q. c. g.
Lathe, 24"x26" American, m. d.
Lathes, 26"x12" Putnam, cone.
Lathe, 26"x12" Wickes, q. c. g., new.
Lathe, 36"x20" Sidney, q. c. g., cone.
Lathe, 36"x28" Putnam, m. d.

Lathe, 50"x25" Bement, triple grd.
Millers, horiz. Nos. 3 & 5 Cincinnati.
Miller, vertical, No. 0 Bickett.
Millers, vertical, No. 3 Brown &
Sharpe, motor drive.
Millers, Nos. 2, 5C & 6 Becker vert.
Motors, 5 & 7 1/2 h. p., a. c.
Nut tappers, 10 spindle, rotary, cap.
1 1/2" nuts.
Pipe machines, 12", 10", 8", 4" & 2".
Planer, 30"x30"x8" Flather, 1 head.
Planer, 120"x25" Sellers, 4 hds, m. d.
Press, No. 68 Bliss, double acting.
Press, No. 51 Bliss, s. s., 1 1/2" stroke.
Punch, dbl. end, 20" throats, 1 1/2"x1".
Rolls, bending, 16"x3" Wickes, m. d.
Rolls, bending, 12"x5/16" H. & J.
Shaper, 20" Steptoe, b. g. crank.
Shear, angle, 6"x6" L. & A. dbl. m. d.
Shear, 60"x1" plate, L. & A., m. d.
Shears, guil., cap. 2 1/2", 2" & 1".
Shear, rotary, cap. 1/2", with circ. att.
Shear, rotary bevel, cap. 1/2", m. d.
Turret lathe, 18" Libby, like new.

SECOND-HAND MACHINERY

FOR SALE BY

Carbon Steel Company, Ft. 32nd St. & A. V. R. R., Pittsburgh, Pa.

The complete liquidation of the Carbon Steel Company makes available the following tools:

Drill, Pond Machine Co. 6' radial, belt drive	\$ 500.
Grinders, Espen Lucas 1 1/2 x 13" spindle	each, 50
Lathes, Israel H. Johnson 30" x 18", bk. grd., 5-step cone drive. (2) .. ea.	350
Lathe, 36" x 27" roll lathe, 60" face plate	500.
Shears, Mackintosh steam dr., 30 1/2" thr., 4" str., 24" shear blade. (2) .. ea.	300
Shear, Mackintosh s. grd., 22" throat, 16" blade, 2" stroke	100.

FOR SALE BY

Niles-Bement-Pond Company, 111 Broadway, New York
Located at our various factories

LATHES.

12" x 5' Reed, taper.	36" x 12' Pond, t. g., 220 v., d. c. mtr.
14" x 8' P. & W., taper.	36" x 17' Pond, taper, 220 v., d. c. mtr.
24" x 24' Niles.	42" x 20' Niles, t. g.
26" x 10' Pond, 220 volt, d. c. motor.	48" x 28' Niles, t. g.
28" x 12' Pond.	50" x 17' Niles, old style.

TURRET LATHES.

2", 2 1/2" and 3" P. & W.	28" & 34" Gisholts.
2" x 24" W. & S. hollow hex.	32" Conradson-American turret.
21" and 28" Pond rigid turrets.	

PLANERS.

20" x 20" x 6' Bement.	42" x 42" x 26' Pond, reversing motor.
24" x 24" x 6' Powell.	48" x 48" x 16' Pond, reversing motor.
24" x 24" x 6', 8' and 10' Whitcomb-B.	48" x 48" x 20' Bement, belt.
26" x 26" x 6' Gray.	54" x 36" x 10' Bement, belt.
30" x 30" x 6' & 10' Pond, 2 heads.	50" x 36" x 22' Pond, reversing motor.
30" x 30" x 6' to 12' Pond, reversing motors.	54" x 54" x 22' Pond, rev motor.
36" x 36" x 10' to 16' Niles.	60" x 60" x 20' & 24' Niles, belt.
36" x 36" x 12' to 16' Pond, reversing motors.	72" x 72" x 12' Bement, belt.
42" x 42" x 14' Bement.	72" x 60" x 14' Bement, reversing mtr.
	10' x 10' x 36' Betts, 220 volt, d. c. motor through belts.

MILLERS AND GEAR CUTTERS.

No. 3-B plain, 220 v., d. c. motor, Brown & Sharpe.	6 x 4 1/2 to 132" P. & W. old style thread millers.
No. 4 plain, cone pulley, B. & S.	15" Gleason bevel gear generator.
No. 5 plain, cone pulley, B. & S.	No. 5 vertical, cone pulley, B. & S.
No. 4-48" Newark, 220 v., d. c. mtr.	36" to 60" B. & S. spur gear cutters.

DRILLING MACHINES.

32" Aurora, tapping attachment.	6' Pond, 220 volt, d. c. motor.
40" Aurora, tapping attachment.	6' Niles full universal, speed box.
3 1/2" Morris speed box radial.	12-spindle No. 13 P. & W. multiple.
5' Niles full universal, speed box.	

BORING MACHINES.

36-44" Niles side hd. mill. 220 v., d. c.	10' Niles mill, 220 v., d. c.
51" Niles mill, with turret head.	4 1/2, 5 and 6 1/2" Niles floor borers.
60" Bement b. & t. mill.	2 1/2 to 4 1/2" horiz. bor. and drill. mches.

MISCELLANEOUS.

Air compressors, 324' and 835', steam drive.	Heater, 600 h.p. Cochrane, fd. water.
Crane, 3-ton, 19' span, Niles 3-motor, 220 volt, d. c.	Grinder, Mummert-Dixon portable radial 220 volt d. c. motor.
Engines, 125, 150 and 200 h. p. Philadelphia Corliss.	Grinder, No. 6 Bryant hole gr.
Generator set, 100 k. w., 22 volt, d. c., direct connected to engine.	Grinder, P. & W. thread miller cutter.
	Pumps, 200 to 1000 gal., steam drive.
	Sl-tter, 18" Putnam, 220 volt, d. c. motor.

SECOND-HAND MACHINERY

FOR SALE BY

McDonald Machinery Co., 1531-33 N. Broadway, St. Louis, Mo.

BOILER EQUIPMENT.

Long & A. No. 0 angle shear, 4x4x4.
Felber combination punch & slitting shear, 1" in 1".
Scully hvy. punch, 1" in 1", thrt. 20".

H. & J. No. 0 punch, 4" in 4", 14" thrt.
Badger punch, 36" throat, 1" in 1".
Miscellaneous equipment, screw punches, taps, flues, hoists, etc.

MISCELLANEOUS.

Brakes, 6' 8', & 10' hand.
Grinders, 25 Heald type ring grinders; Person-Arter automatic ring grinder; 3 McQuary-Norris step cutting mchs; Modern, B. & S., Norton and Walker grinders, Blanchard motor drive surface grinder.
Lathes, 40-9" to 24" South Bend; 26"x14" Hamilton, q. c. g.
Milling mches., Milwaukee No. 1A, Hendey No. 2 universal, American No. 1 1/2 univ; Becker model SD vert., rotary table, wt. 16,000 lbs.; 20 plain millers; Cincinnati No. 1 1/2 univ.

Planers, 36"x36"x23' Sellers, 2 hds.; 42"x42"x16' Pond, 2 heads.
Presses, No. 2 Rockford and Consolidated, No. 19 Bliss, No. 40 Swaine.
Radial drills, 5' American, 4' Niles.
Screw mchs., B. & S. No. 00, Foster No. 3 hand, 2 Woods No. 2 tilting turret.
Shapers, new 12", 14", 16" & 20"; 36" Fellows, gear; used 16" & 24"; automatic 24" shaping planer.
Sheet metal tools, Voder and Pexto.
Slitting shear, No. 10 Quickwork.
Welders, butt and spot.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1001-3-5 N. Sixth St.,

St. Louis, Mo.

LATHES.

9"x12" Sundstrand.
15"x 8' Sidney, q. c.
18"x 6' American, q. c.
21"x 8' Sidney, q. c.
26"x16' Niles, plain change.

26"x13' Putnam, q. c., ar. for motor.
20"x15' American, q. c.
33"x20' Draper, triple geared.
36"x18' Prentice Bros., t. a.
20" Pitt lathe.

SHAPERS.

Smith & Mills, all sizes.

16" Flather, 4 speeds.

PLANERS.

24"x24"x 6' Lodge & Davis.
32"x32"x 8' Whitcomb.

36"x26"x10' Flather.
60" open-side Detrick & H., 3 heads.

GRINDERS.

10"x36" Thompson universal.
8" Heald rotary, with magnetic ck.
10"x32" Webster & Perks universal.
No. 80 Greenfield universal.
No. 1 Wilmarth & Morman univ.

No. 6 St. Louis.
Yankee twist drill.
12"x42" Landis universal.
30" Diamond face grinder.

DRILLING MACHINES.

20" Barnes.
24" Aurora, sliding head.
25" Barnes, stationary head.

34" sliding head.
3' arm Mueller speed box drive.
5' arm Prentice radial.

MILLERS.

No. 2 Kempsmith plain.
No. 4 Becker-Brainerd universal.
No. 33 Kempsmith manufacturing.
No. 5-B Brown & Sharpe.

No. 2 Rockford full universal.
No. 3 1/2 Knight vertical.
Nos. 0 and 3 Burke bench millers.

MISCELLANEOUS.

Boring machine, horizontal, No. 2
Pawling & Harnischfeger.
Boring mill, No. 1 Binsse horiz.
Boring mill, 60" Ballard.
Bulldozer, 75-ton Lourie hydraulic.
Engines, Corliss, 75 to 200 h. p.
Magnetic pulley, 24"x36".
Press, portable, hydraulic.
Punch, No. 14 Williams-White, dbl.
Punch, No. 5 Long & Allst., 5" thrt.
Punch, No. 7 Long & Allst., 4" thrt.

Riveter, 24" Shepard.
Saw, No. 12 Higley.
Saw, No. 21 Higley.
Saw, Lucas revolving, 31" blade.
Screw machine, No. 6 Woods.
Shear, squaring, 50" Excelsior.
Shear, power, circle, Niagara.
Spot welder, Toledo, 20 k. w.
Tapper, No. 2 Garvin.
Tilted turret lathes, Wood, (3).
Turret, 28" Gisholt latest.

SECOND-HAND MACHINERY

FOR SALE BY

J. L. Lucas & Son, Inc., - No. 3 Fox St., Bridgeport, Conn.

MILLING MACHINES.

Select the one you need and write for full particulars.

UNIVERSAL MILLERS.

- | | |
|----------------------------------|--------------------------------------|
| No. 1 Milwaukee universal. | No. 3 Cincinnati universal. |
| No. 2 Cincinnati universal. | No. 3-A B. & S. universal. |
| No. 2 B. & S. universal, (2). | No. 3 G. S. Hendey Norton universal. |
| No. 3 Becker Brainard universal. | |

PLAIN MILLERS.

- | | |
|------------------------------|------------------------------------|
| No. 21 Garvin plain. | No. 3 Cincinnati plain. |
| No. 13½ Garvin plain. | No. 24 Ohio plain. |
| No. 1 Brown & Sharpe plain. | No. 34 Ohio plain. |
| No. 1½ Brown & Sharpe plain. | No. 2-B Milwaukee plain. |
| No. 12 Brown & Sharpe plain. | No. 4 Brown & Sharpe plain, (2). |
| No. 3 Brown & Sharpe plain. | No. 4-B Brown & Sharpe hvy. plain. |

Every one guaranteed. Write or wire today.

FOR SALE BY

Peninsular Machinery Co., 429-31 E. Jefferson Ave., Detroit, Mich.

LATHES.

- | | |
|----------------------------------|-----------------------------------|
| 9"x14' Porter-Cable, (4). | 14"x 6' Rockford, l. c. g. |
| 13"x 5' South Bend, l. c. g. | 14"x 8' Monarch, l. c. g., taper. |
| 13"x 5' Champion, l. c. g. | 16"x 8' Bradford, l. c. g. |
| 14"x 6' Prentice, l. c. g., (2). | 17"x 8' LeBlond, q. c. |
| 14"x 6' Bradford, q. c. | 17"x10' LeBlond auto. |
| 14"x 6' Carroll-Jamieson, (9). | 21"x11' LeBlond, all geared, (2). |
| 14"x 6' Flather, l. c. g. | 21"x 8' LeBlond, q. c. |
| 14"x 6' Reed, l. c. g., (5). | 26"x10' LeBlond crankshaft, (2). |

DRILLING MACHINES.

- | | |
|------------------------------|----------------------------|
| 6" Sipp bench drill. | No. 3 Avey, h. s. |
| 14" Excelsior. | 36" American sens. radial. |
| 14" Avey, h. s., b. b. | No. 3 Baush multiple. |
| 26" Hoefler, st. h. d., (2). | |

MILLING MACHINES.

- | | |
|--------------------------------|------------------------------|
| No. 6 Whitney hand. | No. 32 Kempsmith. |
| United States hand. | No. 1½ Cincinnati plain. |
| No. 0 Steptoe, b. g. and p. f. | No. 2 Brown & Sharpe plain. |
| No. 0 Farwell q. c. | No. 3 Hendey plain. |
| Briggs type A, (2). | No. 4 LeBlond, a. g., plain. |
| No. 12 Brown & Sharpe. | 48" Newton 2-spindle. |

TURRET SCREW MACHINES.

- | | |
|----------------------------|-----------------------------|
| 1" Dreses. p. h. and p. f. | 2" Milholland, f. h. |
| ½ Cleveland auto., type B. | 2x26 Pratt & Whitney, f. h. |
| 14" Defiance, f. h. | 2x26 Pratt & Whitney, a. c. |

GRINDERS AND POLISHERS.

- | | |
|---------------------------------|-----------------------------------|
| No. 1 LeBlond plain. | No. 50 Heald cylinder. |
| No. 1 Brown & Sharpe universal. | No. 210 Heald magnetic. |
| No. 1 Norton universal. | 14x72 Landis plain. |
| No. 2 Bath universal. | 20" Blount wet grinders, (2). |
| 6x32 Norton plain. | No. 4 Webster & Perks polishing. |
| No. 2 Gardner disc grinder. | Bennett & O'Connell dbl. sp. pol. |
| No. 24 Gardner vertical. | No. 23-B Valley City disc. |
| No. 70 Heald internal. | No. 220 Badger automatic. |

MISCELLANEOUS.

- | | |
|-------------------------------------|---------------------------------------|
| Band saw. 6" Napier. | Metal cutter, No. 1 Gray. |
| Cutting-off mch. 4" Huribut-Rogers. | Press, No. 40 Perkins, o. b. i. |
| Filer, No. 2 Cochrane & Bly. | Shear, squaring, No. 552 Niagara. |
| Gear tester, bevel, Gleason. | Screw slotter, No. 1 National Acme. |
| Hack saw, 6x6 Peerless, h. s. | Threader, 2-sp. Webster & Perks. |
| Hammer, drop, No. 5 Williams-W. | Threader, H. & G. 8/16 automatic. |
| Keyseater, No. 1 Davis. | Tumbling barrels, No. 3-S Globe, (2). |
| Lapping mchs., Bethel-Player, (2). | |

SECOND-HAND MACHINERY

FOR SALE BY

Michigan Malleable Iron Co.,

Detroit, Mich.

VERTICAL BORING MILLS.

Seven 30" Gisholt vertical boring mills in excellent condition.

FOR SALE BY

Bardons & Oliver,

Cleveland, Ohio

LATHES.

13"x 6" Pratt & Whitney, t. a.
14"x 6" Reed.
14"x 6" Flather, t. a., (2).
16"x 6" Bradford.
16"x 7" Reed.
16"x 7" Reed, t. a.

18"x 9" Chard, d. b. g.
18"x 8" Reed.
18"x 8" Flather, t. a.
19"x 8" LeBlond hvy. duty, q. c. g., t. a.
22"x 8" Flather, (2).
32"x 16" Gleason, d. b. g.

MILLING MACHINES.

No. 1 Milwaukee universal.
No. 2 Milwaukee plain.
No. 12 Kempsmith, Lincoln pattern.

Pratt & Whitney, Grant pattern.
6"x 80" Pratt & Whitney thread mill-
ing machine, old model.

TURRET LATHES.

No. 1 13/16 capacity Bardons & Oliver.
No. 3 1 1/2 " " "
No. 4 1 1/2 " " "
No. 4 1 1/2 " " "
No. 9 2 1/2 " " "
No. 10 3 " " "
No. 10 3 1/2 " " "
4 1/2"x 30" " " motor driven

MISCELLANEOUS.

Boring mill, No. 2 Rochester horizontal, with single pulley.
Boring mill, Warner & Swasey horizontal.
Drill press, No. 1 Allen single spindle sensitive.
Planer, 30"x 30"x 10" Whitcomb, arranged for motor drive.

FOR SALE BY

The Randle Machinery Co., 1723 Powers Street, Cincinnati, Ohio

ENGINE LATHES.

14"x 6" Lodge & S., q. c.	\$ 450.	20"x 10" American, q. c., single	
15"x 6" Flather, loose change.	200.	pulley drive, geared head..	\$ 750.
18"x 10" Greaves & K., q. c.	675.	25"x 12" LeBlond, quick chge.	1,100.
22"x 18" Niles, l. c., taper att..	650.	27"x 18" LeBlond, quick chge.	1,350.

PLANERS.

32"x 32"x 14" American, 2 heads.....	\$1,250.
36"x 36"x 14" American, 2 heads.....	1,350.
36"x 36"x 18" Niles, double housing, each housing equipped with 2 rail heads, motor drive.....	1,500.
42"x 42"x 26" Cincinnati, 2 heads.....	2,250.
60"x 60"x 20" Niles, 4 heads, motor drive.....	3,000.
Pedrick & Ayer open side, planes 30" wide, bed 11' long.....	1,000.

MISCELLANEOUS.

Bolt cutter, Acme 4" sgl. hd.	\$ 750.	Miller, No. 3 Brown & Sharpe	
Boring mill, 60" Niles vert.,		plain	\$ 600.
d. c. motor drive, with mtr ..	750.	Motor, 30 h. p. Jantz & Leist,	
Drill press, 28" Cincinnati up-		d. c., 650 r. p. m	450.
right, b. g., single pulley,		Radial drill, 6" Niles full univ.,	
gear box drive.....	475.	d. c. motor dr., with motor..	750.
Drill press, 45" upright, back		Shaper, 12" Pratt & Whitney	
geared, power feed.....	300.	crank, traveling head.....	300.
Drill press, 24" Aurora up-		Shaper, 24" Barker, b. g. crank	750.
right, back gear, pwr. fd....	275.	Turret lathe, 24" Gisholt, d. c.	
Grinder, No. 60 Heald cylinder	750.	motor drive, with motor.....	500.

Many other bargains. Send us your requirements.

SECOND-HAND MACHINERY

FOR SALE BY

Bennett Machinery Co.,

30 Church St., New York City

Boring mill, 51" Bridgeport.
Lathe, 40"x13" Putnam, triple grd.
Lathe, 32"x35" Bement Miles.
Lathe, 26/48"x10" McCabe.
Lathe, 24"x10" Draper.

Lathe, 18"x8" Davis, dbl. bk. grd.
Milling mch., No. 4 B. & S. plain.
Planer, 54"x12" Pond, 4 heads.
Plate planer, 18" Niles.
Punch, s. e., 26" throat, 4"x4".

FOR SALE BY

Herman L. Winterer,

943-53 N. Front St., Philadelphia, Pa.

LATHES,

43"x17'4" Bement-Miles.
37"x14" Johnson d. b. g., q. c. f., t. a.
32"x12" Pittsburgh, heavy duty, q. c. g.
27"x12" Bullard.
26"x11" Wickes, q. c. g.
26"x10" Niles, q. c. g.
25"x14" Hendey, q. c. g., taper attachment, oil pan, (2).
24"x14" Porter.

21"x8" LeBlond.
20"x8'6" Walcott, d. b. g., q. c. g., (2).
20"x8" Whitcomb Blaisdell, q. c. g.
19"x10" Draper, patent head.
18"x8" Davis, q. c., d. b. g.
18"x7" Chard, d. b. g., semi q. c. g.
18"x6" to 8" lathe. (6).
16"x8" Greaves & Klusman, b. g., t. a.
And many others.

TURRET LATHES.

34"x28" Pond, triangle.
3x36" Pratt & Whitney, hollow hex.
20" Acme flat, 24", h. s. motor drive.
20x7'6" Pratt & Whitney, back grd.
20x7' Bridgeport, 24" h. s.
19"x7" Fay & Scott, back grd.
No. 22 1/2 Garvin Monitor.

No. 3 Kempsmith.
14"x6" Warner & Swasey.
16"x6" Johnson, back grd.
No. 3 Bardons & Oliver back grd.
14"x5'3" Pratt & Whitney, (2).
No. 3 Foster Kimball.

DRILL PRESSES.

42" Gang radial, s. p. speed box.
40" Barnes horizontal radials, (2).
36" Bickford radial, circular base, motor driven.
28" Rockford, q. c. g. feed (2).

26" No. 3 Avey high speed.
14" 6-spindle Allen sensitive.
Henry & Wright sensitive.
Plain drills, all sizes.
Drill presses, assorted sizes.

MILLING MACHINES.

38"x6" Ingersoll horizontal slab.
No. 5 Cincinnati, table 94"x50".
No. 15 Garvin, table 12x42".
No. 3 Becker Brainard, table 12x40".
No. 3 Hendey-Norton, q. c. g.

No. 0V Brown & Sharpe plain, (2).
No. 5-C Becker vert., rotary table.
No. 5-B Becker vert., table 14x43.
No. 7-H Lincoln type Becker miller.

PLANERS AND SHAPERS.

12"x10"x25" Sellers planer, 4 heads.
30"x30"x8" Hewes & Phillips planer.
30"x30"x8" Putnam planer.
26"x26"x6" Hendey planer.
24"x24"x6" Sellers planer.

48" Morton draw-cut shaper.
39" Pedrick & Ayer, open side.
26" Cincinnati.
14" Warren shaper.

MISCELLANEOUS.

Band metal saw, 6x6 Napier.
Boring mill, car wheel, 60" Newton.
Boring mill, 36" Baush & Harris vertical, double head.
Boring, drilling and milling machine, 17 1/2" Bement Niles horizontal.
Centering machine, 4" Whiton.
Grinder, 13 1/2"x5" Landis universal.
Grinder, No. 1 Norton universal.
Grinder, disc, No. 17 Besly.
Grinder, disc, No. 1 Besly.
Hammer, 15 lb. Bradley helve.
Hammer, 25 lb. Little Giant, m. d.

Hammer, 40 lb. Bradley, helve.
Hammer, 60 lb. Hotchkiss.
Hammers, 60 lb. Bellefonte upright; 2 Hammer, 500 lb. Merrill belt drop.
Hammer, 1000 lb. Merrill board drop.
Hammer, 1250 lb. Bell steam.
Keyseaters, 18" stroke Morton, (2).
Punch presses, all sizes, (55).
Punch & shear, Industrial Wks. d. e., capacity 1" in 1", squaring 4"x6".
Slotter, 14" Niles.
Tooth rounding mche., Schuchardt & Schutte.

Large assortment of General Machinery. Send for Complete List.

SECOND HAND MACHINERY

FOR SALE BY

Louis E. Emerman & Company, 1761 Elston Ave., Chicago, Ill.

Bending brake, Chicago, capacity $\frac{1}{2}$ "x6', motor driven.....	\$ 850.
Bending rolls, Wickes Bros, capacity, $\frac{1}{2}$ "x10'.....	2975.
Drill presses, Kern 42", brand new.....	575.
Drill, multiple, Natco No. 30, 20"x40" head, 48 spindles.....	1150.
Drill, multiple, Natco No. 32, 20"x54" head, 42-1 $\frac{1}{2}$ " spindles.....	1250.
Gear cutter, Brown & Sharpe No. 4, 36" capacity.....	450.
Gear generator, Gleason 11".....	575.
Gear hobber, Newark No. 2.....	350.
Grinder, automobile cylinder, Baxter D. Whitney No. 23.....	875.
Hack saw, Peerless 9"x9", motor driven.....	325.
Lathes, Gisholt 20" automatic turret.....	1750.
Milling machine, Valley City No. 1 $\frac{1}{2}$ universal, complete.....	775.
Planer, 24"x24"x8' Gray, single head.....	775.
Planer, 34"x34"x32' Putnam, 4 heads, with motor.....	4250.
Punch and shear, Williams-White No. 14, double end.....	1250.
Radial drills, Bickford 2 $\frac{1}{2}$ ", single pulley drive.....	550.
Squaring shear, Long & Allstatter No. 4, $\frac{1}{2}$ " plate.....	850.

FOR SALE BY

Brownell Machinery Co., 11-13 Eddy St., Providence, R. I.

BORING MILLS.

24" Bullard, New Era type.	24" Universal horizontal.
24" Bullard rapid production.	No. 3A Universal horizontal.
20" Baush vertical.	

DRILLING MACHINES.

3' Reed-Prentice plain radials.	3-spdl. Reed-Prentice ball b. sens.
5' Baush & Harris plain radial.	4-spdl. Barr, power fd. to each spdl.
25" Weigel upright.	5-spdl. Henry & Wright, class "K."
23" Prentice heavy duty.	4-spdl. Demco bench No. 34-A.

GEAR CUTTERS.

Whiton, hand feed.	No. 13 B. & S. 18x4 spur & bevel.
No. 12 Brown & Sharpe, universal	No. 3 B. & S. 26x8 spur & bevel.
12x8 spur and bevel.	No. 612 Fellows gear shaper.

GRINDERS.

20" Blount wet tool.	No. 1 LeBlond univ. tool and cutter.
No. 3 Wilmarth & Morman automa-	No. 12 B. & S. plain cylindrical.
tically surface, magnetic chuck.	10x72 Norton plain cylindrical.

MILLING MACHINES.

No. 4 Cincinnati plain.	No. 20 Ohio universal.
No. 15 Garvin plain, 42".	No. 2B Rockford universal.
No. 25 Bilton plain.	No. 6 Becker vertical.

PLANERS AND SHAPERS.

17"x17"x 4' Whitcomb.	16" Sellow shaper.
22"x22"x 8' Whitcomb.	20" Kelly, back geared.
26"x30"x14' Whitcomb-Blaisdell.	

SCREW MACHINES.

No. 705 Rivett precision.	No. 2 $\frac{1}{2}$ Garvin, g. f. h.
No. 2 Southworth.	6A Potter & Johnston, late type.
No. 2 Wood tilted turret.	2P Potter & Johnston piston and
14x18 Pratt & Whitney.	piston ring.

MISCELLANEOUS.

Broacher, bench, No. 00 LaPointe.	Riveter, bench, No. 1 Grant rotary
Oil extractor, No. 2 American.	vibrating.
Pipe machine, No. 7-B Jarecki.	Sand blast, No. 1 Leiman Bros.
Presses, inc., s. a., power, 2" No. 3B	Saw, band, 42" Clement.
Standard Machinery Co.	Saw, jig, No. 1 Beach.
Press, s. a., power, No. 4 Manville,	Saw bench, No. 650 Dover.
ratchet roll feed.	Saw bench, Rollston double arbor.
Press, 50 lb. Standard auto. drop.	Shaft straightener 10' Rockl'd, 3" cap.
Press, 200 lb. Standard auto. drop.	Slotter, 12" Bement-Miles.
Rolling mill, 6x10 McWilliams.	Tapping mch., No. 2 Garvin, auto.

SECOND-HAND MACHINERY

FOR SALE BY

The Reeve-Fritts Company,

558 Washington Blvd., Chicago, Ill.

Drill, 4-spindle Allen, b. b.
Drill, 10" Albany sensitive.
Grinder, No. 1 La Salle, surface.
Grinder, 3x18 Norton.
Lathe, 10"x5' Monarch, q. c. g.

Lathe, 14"x6' Rockford, q. c. g.
Lathe, 14x6' Hamilton, q. c. g.
Press, No. 21 Bliss, o. b. i.
Press, No. 30 L. & A., o. b. i.
Profiler, 2-spindle Leland.

FOR SALE BY

Tubor, Velick & Co., Inc., - - 628-630 W. Lake St., Chicago, Ill.

Telephones: Monroe 4199-6813. No Branches

PUNCH PRESSES.

No. 4 Walsh, (5).
No. 7 Beatty, cap. 1½" in 1".
No. 15 Torris Wold.
163½ Toledo, 9½" stroke.
Stiles & Parker.
Nos. 13 & 15 single end punches.

Long & Allstatter horn punch, capacity 1½x1.
No. 17 Williams-White double end punch & shear.
No. 785 Kling Bros. comb. punch & shear.

DRILL PRESSES.

14" Excelsior.
20" b. g., p. l., new, \$130.
20" Weigel.

26" Hoefler.
4-sp. Whipp, hi-speed, No. 2 taper.
Bench type drills, \$16.

MILLING MACHINES.

No. 2 LeBlond.
No. 2 Cincinnati vertical.

No. 3 Kempsmith.
A number of hand millers.

LATHES.

11"x 5' Sterling.
14"x6' Prentice.
15"x 8' Sidney, q. c.
16"x 6' Sidney, q. c., (3).
16"x 6' Monarch q. c.
16"x 8' Canedy-Otto.
16"x 6' Hendey, q. c., taper att.
16"x 8' South Bend, q. c.
17"x 8' Sidney, q. c.

18"x 8' Chard.
19"x10' Sidney, q. c., (2).
20"x 8' Lodge & Shipley, geared head, s. p. drive.
24"x10' Canadian, q. c., d. b. g., (3).
26"x10' Lodge & Shipley, q. c.
27"x14' Sidney, q. c.
Dalton Six.

PLANERS.

24"x24"x6' Pond.
24"x24"x 8' Putnam.
30"x30"x 8' Fitchburg.

36"x36"x 7' Flather, 2 heads.
36"x36"x 8' Cincinnati.

SHAPERS.

14" Steptoe.
16" Ohio.
16" & 20" Whipp, b. g.

16" Columbia.
24" Rockford.
24" Kelly.

SCREW MACHINES.

No. 2 Pratt & Whitney, hand.
Warner & Swasey.

No. 2 Smith, hand.

GRINDERS.

No. 2 Manhattan surface.
No. 14 Besly, disc.
No. 2 Oakley, new.

No. 1 Grand Rapids, new.
10x36 Thompson, new.
Emery grinders, \$2 and up.

WOOD-WORKING MACHINERY.

Band saws, 36" Famous, new, (10).
Boring mills, Andrew, (3).
Glue jointer, Falls.

Planer, 30" Berlin.
Stickers, 6 and 9".
Swing saws, Porter, (4).

MISCELLANEOUS.

Band saw, metal, Atkins.
Buffers, U. S. and Westinghouse, 5 h. p., b. b.
Cold saw, No. 20 Lea-Simplex.
Hack saws.
Lift trucks, Barrett, 1 ton cap.
Motors, a. c. and d. c.

Paper cutter, Chandler & Price.
Punch & shear, No. C Cleveland.
Radial drill, 3½" Canedy-Otto.
Radial drill, 3½" Cin'ti Rickford.
Roll, power, 7" Beloit, ¾" capacity.
Time clocks, International.
Woodworking machines.

Leather belting. Pulleys, shafting and hangers.

SECOND-HAND MACHINERY

FOR SALE BY

Donahue Steel Products Co.,

Bulldozers, Nos. 2, 3, 4, 5, 6, 7 & 8
Williams & White.
Hammers, cushioned helve, 25 to
200 lb. Bradley.
Hammers, upright, 50 to 500 lb.
Bradley.
Hammer, crank lift drop, No. 5
Williams & White.
Press, trimming, No. 57 Toledo, side
shear, motor drive.
Press, No. 4 Bliss, solid back.
Punch, s. e., Cleveland, 1½" thru 1",
arch. jaw.
Punch, s. e., No. 1 Long & Allstatter.
Punch, s. e., No. 3 Long & Allstatter.

204 N. Jefferson St., Chicago, Ill.

Saw, hot, No. 2 Ajax.
Saw, hot, No. 3 Ajax.
Shear, bar, Long & A., cap. 1½" rd.
Shear, bar, Long & A., cap. 2" rd.
Shear, bar, Long & A., cap. 2½" rd.
Slotter, No. 3 Manville.
Storage battery elevating platform
truck, Auto. Transportation Co.
Threading machine, 2-sp. Landis,
1" cap., with lead screws.
Threading mche., sgl. sp. 3" Landis.
Thread roller, No. 6-B Manville.
Upsetter, 1½" National.
Upsetting and forging machines,
Ajax, 1", 1½", 2" & 3".

All of the above in our Chicago stock.

FOR SALE BY

Reliance Machinery Sales Company

Brighton Road at Pennsylvania Ave.,

Pittsburgh, Pa.

Air compressor, 321' Laidlaw, b. d.
Bolt cutters, 3" Landis, single head,
lead screw, (2).
Boring mills, 30" Bullard, 1 head.
Boring mill, 34" Collard, 1 head.
Boring mill, 72" Betts vert., 2 hds.
Boring mill, 90" Niles vert., 2 hds.
Buffer, No. 14 Builders Iron Fdry.
Bulldozers, Nos. 5, 6, 7 & 8 W.-W.
Die sinker, No. 6 Jackson.
Die slotter, 3½" stroke, Garvin.
Drill, 21" Cincinnati, s. h., t. a.
Drill, 24" Hoefler, sliding head.
Drill, 26" Rockford, sliding head.
Drill, 36" Snyder, sliding head.
Drill, 45" Snyder, sliding hd., t. a.
Drill, 2" 6" Carlton high speed radial.
Drills, Amer. 4 & 5" radial, g. b., s. p. d.
Drills, No. 2 Colburn, mfg. type, (4).
Drill, No. 2 Colburn 4-spd. gang.
Drillers, 5-spindle Detroit, (2).
Flanging machine, McCabe.
Gear cutter, 24" Becker-B. auto.
Gear cutter, 36" Whiton.
Gear cutter, 60" Gould & E.
Hammer, 40 lb. Bradley, cush. helve.
Hammer, 100 lb. upright power, b. d.
Hammer, 2500 lb. Morgan, st. forg.
Lathe, 14"x8" Whitcomb-Blaisdell.
Lathe, 18x10' Reed, c. c. g., d. b. g.
Lathe, 20x12' Bradford, t. a.
Lathe, 24"x12' Rahn & L., c. c. g.
Lathe, 26"x16" Bridgeford, quick
change gear, double back grd.
Lathe, 30"x12" Johnson, triple grd.
Lathe, 34"x12" LeBlond, trip. grd.
Lathe, 36"x18" American, grd. hd.
Miller, No. 2 Cincinnati, h. p. vert.
Miller, No. 3 Hendey plain.
Miller, model "B" Becker, vert., s. p. d.

Nut tapper, 1½" Acme, 6 sp., semi-aut.
Nut tapper, 2" National, 6-spindle.
Pipe machine, Jarecki, cap. 1" to 4".
Pipe machine, Cox, 2½" to 8".
Pipe machine, Merrill, 2½" to 12".
Press, No. 4 Toledo, o. b. i., 2½" str.
Press, No. 5 Toledo, o. b. i., 4" str.
Press, No. 23 Stoll homing.
Press, No. 52 Bliss, s. s., 2" stroke.
Presses, Nos. 61 & 62 Bliss o. b., f. w.
Press, No. 73 Consolidated, o. b., 2½" st.
Press, No. 74 Consolidated, o. b., 2½" st.
Press, No. 65 Consolidated, geared.
Press, No. 94 Consolidated, 2" str.
Punch, Cleve., 24" thrt. 1½"x1" m. d.
Punch, Cleve., 15" thrt. 1½"x1" m. d.
Punch, No. 54 Hilles & J., 1½"x1½".
Punch, 72" Cleve., 1½"x1" m. d.
Punch, 48" Cleve., 1½"x1" m. d.
Saw, No. 3 Ryerson h. s. friction.
Screw mchs., No. 52 National-Acme.
Screw mchs., No. 55 National-Acme.
Screw mchs., No. 53 National-Acme.
Screw mchs., No. 73 National-Acme.
Screw mch., No. 1 W. & S., with tools.
Screw machine, No. 2 Foster, pl. hd.
Screw machine, No. 2 W. & S., pl. hd.
Shaper, 16" Hollingworth, b. g. crank.
Shaper, 20" Cincinnati, b. g. crank.
Shaper, 24" Milwaukee, b. g. crank.
Shear, No. 5 Quickwork, cap. 4" pl.
Sh., No. 6 Quickwork, cap. 4" plates.
Sh., No. 20 Quickwork, cap. 12 gauge.
Shear, No. 38 L. & A. alligator, 14".
Shear, 48" Bertsch, 18" gap, 10 ga. cap.
Shear, 48" Niagara, 18" gap, 4" cap.
Shear, squaring, 96" Stoll, 16 ga.
Shear, squaring, 96" Power, 20 ga.
Threader, Geometric, cap. ½" to 1".
Upsetter, 3" Acme.

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Gisholt 42" vertical. 2 swivel heads.

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Niles horizontal boring, drilling and milling machine, 4½" bar, bed plate 10'x12', and with 44" circular chucking table.

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Allen 4-spindle ball bearing.

Barr 6-spindle, ¾" capacity.

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Niles 3½' universal.

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Fosdick 5' universal, motor drive.

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26" Brown & Sharpe No. 3.

48" Gould & Eberhardt.

Fellows No. 62 gear shaper, motor drive.

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12x36 Modern, new.

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Wells No. 190 universal.

Brown & Sharpe No. 3 universal.

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Bryant No. 10-A.

Brown & Sharpe No. 23.

Madison Gisholt automobile cylinder grinder.

KEYSEATING MACHINES.

Davis No. 2.

Baker Brothers No. 0.

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12x6 Seneca Falls, with pan & taper.

12x6 Seneca Falls style E.

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21x12 Porter, with increase swing att.

PORTER-CABLE LATHES.

Porter-Cable, with complete piston turning equipment.

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No. 1-B Kearney & Trecker plain.

No. 3-B Kearney & Trecker univ.

No. 13-B Brown & S. production.

Cincinnati No. 3 plain.

Cincinnati No. 4 plain.

No. 3 B. & S. vert., all power fds.

Brown & Sharpe No. 5 vertical.

PLANERS.

24"x24"x 6' Chandler.

26"x26"x 8' Niles.

26"x26"x10' Whitcomb.

36"x36"x24' Pond, 4 heads.

74"x54"x24' Pond, 4 heads.

AUTOMATIC SCREW MACHINES.

No. 2-A W. & S. hollow hex. turret lathes, with chucking equipment.

21" Gisholt turret lathes, \$300 to \$500, according to condition, (3).

No. 0G Brown & Sharpe automatic.

Cleveland 4½" automatic.

Cleveland 4½" automatic.

MISCELLANEOUS.

Cutting-off machine, Hurlbut-Rogers, 4".

Die slotting machine, Garvin.

Grinder, Sellers auto. twist drill.

Tapping machine, Garvin No. 2.

Tapping machine, Garvin No. 2X.

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The Sebastian Lathe Co., - 1000 Culvert St., Cincinnati, Ohio

We have the following used tools, most of them taken out of our own shop, and in the case of our Sebastian Lathes they have been rebuilt and are in splendid condition.

Drill press, 18" Aurora, plain lever feed.....	\$ 100.
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Lathe, 13"x7" Sebastian type M, cone head, new.....	378.
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Lathe, 16"x6" Sebastian type M, geared head, 3" single pulley drive, loose change gear, compound rest.....	400.
Lathe, 16"x8" ditto.....	425.
Lathes, 14"x5" ditto (4), each.....	375.
Lathe, 15"x5" ditto.....	385.
Lathe, 10"x4" speed lathe, hand rest.....	60.
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12"x21"x8" Willard, gap, new. \$ 525.	24"x14" American, q. c., taper. \$ 900.
16"x6" Columbus, q. c., prac. new 295.	24"x12" Boye & E., taper att.
16"x6" Cincinnati, q. c. 275.	24"x12" Monarch, q. c., nearly new 1250.
16"x8" Monarch, q. c.	24"x24" Niles, cone pulley.
18"x8" Rahn Carpenter, l. c.	26"x26" Niles, cone pulley.
20"x10" Bradford, quick change, taper, late type..... 850.	New Artisan 11", q. c. 170.

MILLING MACHINES.

No. 2 Brown & S., sgl. pulley. \$ 775.	No. 5 Brown & Sharpe plain. \$ 650.
No. 3 Brown & Sharpe plain. 500.	No. 2 Cincinnati, old st. univ. 400.
No. 13-B Brown & Sharpe.	

DRILLS.

20" Silver, back geared.	42" Bickford radial.
24" Hoefer, 2-spindle..... \$ 275.	5" Niles universal radial, heavy.
28" Aurora, sliding head..... 250.	6" Niles universal radial, heavy.
No. 2 Colburn 20"..... 325.	4" American radial, tapping attach.
30" Prentice radial..... 450.	

PLANERS.

16"x18"x48" Hendey..... \$ 275.	32"x32"x20" Cincinnati, 2 hds. \$ 950.
36"x12" Woodward & P., 1 hd. 750.	42"x42"x26" Cincinnati, 2 hds. 2500.

BORING MILLS.

84" Niles vertical, 2 heads..... \$1350.	42" Colburn vertical, 2 heads. \$ 900.
60" Betts vertical, 2 heads..... 850.	36" Niles, vertical, 2 heads. 750.
42" Bullard vertical, 2 heads..... 900.	42" Gisholt, 2 hds., gr. box, as is 500.

GRINDERS.

No. 65 Heald, cylinder.	No. 2 Brown & Sharpe 12"x30"
No. 60 Heald, cylinder.	Brown & Sharpe, tool and cutter.
Nos. 8 & 10 Besly, disc.	

MISCELLANEOUS.

Air compressors.	Punch & shears, 4 sizes Long & A.
Brake, power bending, 8".	Screw machine, 4" Gridley, 4-spl.
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Gear cutter, 36" Brown & S. No. 4.	Shaper, 16" Queen City, b. g.
Hammer, 1100 Eric, steam, and furnace, sgl frame, nearly new, \$1,100.	Shear, circle, No 10 Quickwork, 60"t.
Keyseater, No. 2 Davis, and cutters.	Turret lathe, No 6 Warner & S.
Punch presses, straight & inc., (8).	Turret lathes, 24" & 26" Gisholt.
	Wheel press, 400-ton, motor drive.

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Pittsburgh, Pa.

Air compressor, 10x12, 164 cu. ft.
Angle bending rolls, 4"x4"x1".
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Boring mill, 60" Betts, 2 hds., m. d.
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Pipe machines, 2" to 12".
Planers, 30" to 120".
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Shaper, 24" Cincinnati, b. d.
Shaper, 24" G. & E., b. g.
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Shear, 8"x1" Bertsch.
Shear, 8"x1" Morgan.
Shear, 24" United, guillotine.
Testing machine, 100,000 lbs. Reihle.

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Jones Machine Tool Co.,

528-532 E. Front St., Cincinnati, O.

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14"x 6' Bradford, quick change.
14"x 6' Monarch, qck. chg., s. p.,
geared head, (2).
16"x 6' Lodge & Shipley, qck. chg.
16"x 8' LeBlond quick change.

20"x12' Greaves Klusman, q. c.
24"x16' American, q. c., cone drive.
30"x12' H. S. & Gamble, q. c.
30"x16' Reed, l. c., cone drive.

MILLERS.

No. 1 1/2 B. & S. plain, (2).
No. 2 Hendey plain.

No. 2 Kempsmith plain.
U. S. hand miller.

PLANERS.

36"x36"x8' Flather, 2 heads.
30"x 8' Gray, 2 heads.

32"x20' American, 2 heads.
42"x36"x26" Cincinnati, 2 heads.

PRESSES.

No. 3 Toledo, o. b. inc.
No. 2 Robinson, o. b.
No. 6 Toledo, o. b. inc.

No. 19 Bliss, open back inc. (2).
No. 20 Bliss, o. b. inc., (5).
Horning press, Swain.

SHAPERS.

14" Whipp, plain crank.
16" Barker, plain crank.
20" Steptoe, back geared crank.

21" American, back geared crank.
24" Barker, back geared crank.
24" Smith & Mills, bk. grd. crank.

SQUARE SHEARS.

40" Niagara, power.
96" P. S. & W. foot power, 20 ga.

96" Robinson, power, 14 gauge.
30" Bertsch foot power.

MISCELLANEOUS.

Bolt cutters, 4" Acme.
Drill presses, 24" Sibley & Ware (4).

Grinder, No. 60 Heald, cylinder.
Radial, 4" Bickford s. p. drive.

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- 1—Minster D-3, heavy duty.
- 1—3½" Mueller Radial, S. P. D.
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- 2—New Turner No. 3, vert. turret.
- 1—N.-B.-P. 96" Ridgeway, motor drive, plain radial.
- 1—Western 6", plain radial.
- 1—Baush 6".

DRILLS—Multiple Spdl., Rect. Head

- 1—Natco No. 14, q. c. g.
- 1—Natco No. 30, 12 spindle.
- 2—New Baush No. 3, 21 spindle.
- 1—New Baush No. 4, 56 spindle.
- 1—Fox, 6 spindle.

PLANERS

- 7—Putnam 26x26x8", 2 heads.
- 1—Woodward & P. 36x36x12", 4 hds.
- 1—Putnam 48"x48"x12", 2 hds., m.d.
- 2—Cleveland 30x30x8 and 36x36x8 openside, NEW.

MILLERS—Plain, Mfg., Univ. & Vert.

- 2—Milwaukee No. 1½ plain.
- 1—Brown & Sharpe No. 2 plain.
- 1—Milwaukee No. 3-B universal.
- 1—Milwaukee No. 3-B plain.
- 2—Briggs type B.
- 2—Taylor & Fenn vertical.
- 1—Becker No. 4B and No. 3C vert.
- 1—Becker "C." vertical.
- 1—Becker No. 2H, vertical.
- 1—Newton No. 1 duplex.

GRINDERS

- 1—Blanchard No. 16, motor driven.
- 1—Springfield-B., 12x12x48 vert.
- 1—Brown & Sharpe No. 14 plain.
- 16—Cincinnati No. 2, 12x36.
- 4—Norton 6x32 & 2—Norton 10x36.
- 1—Fitchburg 12x54.
- 1—Norton 16x36.
- 4—Heald Nos. 60, 65 & 70.
- 3—Heald rot. sur. Nos. 210, 255, 260.

PRESSES

- 2—Toledo No. 53, flywheel.
- 4—Toledo No. 55 & No. 55½, grd.

GEAR CUTTERS

- 2—Barber-Colman No. 2.
- 4—Hercules 8".
- 2—Brown & Sharpe 3x26.
- 1—Brown & Sharpe No. 13.
- 1—Gould & Eberhardt 60", spur.
- 1—Fellows Nos. 61, 6 & 612.
- 1—Gleason 6", 11" & 18", bevel.

TURRET & SCREW MCHS.

- 1—Foster No. 1-B turret.
- 1—Warner & Swasey No. 3-A.
- 3—Foster No. 2-B turret.
- 1—Warner & Swasey No. 4, p. f.
- 1—Warner & Swasey No. 2, p. f.
- 1—New Foster No. 10 turret.
- 4—Greenlee, 2½x26" turret.
- 4—J. & L. 2x24.
- 1—J. & L. 2 spindle turret.
- 1—J. & L. 3x36", flat.
- 1—Acme 1½" turret.
- 2—P. & W. 1x14 screw.

SHAPERS and SLOTTERS

- 1—G. & E. 16".
- 3—New 16" Davis, s. p. d.
- 1—American, 28".
- 1—Newton 10" slotter.
- 1—Pratt & Whitney 10" slotter.

AUTOMATIC SCREW MCHS.

- 8—New Britain No. 24.
- 2—Cleveland 2½" Model A.
- 15—Cleveland ¾" to 1" capacity.
- 1—Cleveland 1" to 1½" capacity.
- 7—Gridley 4 spindle, cap. 14".

LATHES

New Star Lathes, all sizes with all attachments.

- 12—New South Bend 16x8 and 18x8 gap; 21x14.
- 10—New South Bend 15x5.
- 1—LeBlond 26x12, univ. crankshaft.
- 1—Walcott 26x14, 6", q. c. g.
- 1—Johnson 30x12, motor dr.

MISCELLANEOUS

- 1—Acme bolt cutter, 3" cap., motor.
- 1—National bolt cutter, 2-spdl., 1".
- 1—Landis 1½" bolt cutter, dbl. hd.
- 1—Landis 1½" 3-sp. mtr. dr. bolt cut.
- 1—Erie 1100 lb. hammer.
- 1—Quickwork No. 4-B rot. shear.
- 1—New Quickwork No. 6 rot. shear.

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- 14" Landis, single head.
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BORING MILLS

- 30" Bullard, 3-j. ck., b. fd., mtr. br. (3).
- 36" Bullard vertical Turret Lathe.
- 4-jaw ind. chuck, cutting lubricant.
- 42" Baush, 2 swivel hds., pl. tbl., m. d.
- 42" Bullard Rap. Prod., 2 swiv. hds.
- 44" Bullard Maxi-Mill 2 swivel hds., 4-jaw ind. chk., cutting lubricant.
- No. 8 Giddings & Lewis horizontal, t. & l. pulley drive.
- No. 25 Giddings & Lewis hor., m. d.
- No. 350 G & L. hor. floor type, pul. dr.

DRILLS

- Mechanics friction sensitive.
- 3 spindle 16" Prentice h. s., sl. hd.
- 20" Prentice, lever feed.
- 20" W. F. & J. Barnes, square base, wheel & lever, power feed, (6).
- 4-spdl. 20" Barnes, pwr. fd., w. & l.
- 23" Rockford s. hd., b.g., pwr. fd., (3).
- 24" Avey s. hd., hvy. sen., pwr. fd.
- 24" Kern s. hd., b. g., grd. fd., t. a.
- 42" Cincinnati Bickford sliding head, back gears, pwr. fd., tap. attach.
- No. 14 Natco, bored for 22—equipped with ten 14" spdl., motor drive.
- Colburn No. D-5 Heavy Duty.
- W.F. & J. Barnes Hor. Drill & Bor. (3).

RADIAL DRILLS

- 3' Western pl., gear box, box tbl. (3).
- 3½' American pl., gear box, sw. table.

GANG DRILLS

- 4-sp. Cin. Bickford, 28" s. h., b.g., p.f.
- Moline No. 6-D, 24" rl., 8 BV-14 hds.
- Moline No. 7-D, 24" rail, 4 No. 28 heads, (4).
- Moline No. 11-D, 5' rl., 8 BV-14 hds.
- Moline No. 16-D, 24" rl., 6 BV-20 hds.
- Moline No. 17-D, 24" rl., 8 BV-14 hds.
- Moline No. 7-D Cylinder Borer, 30" rail, 4 CWL-30 heads (3).

GEAR CUTTERS

- 50"x12" Gould & Eberhard, spur only, rack cutting attachment.
- No. 6 Fellows Gear Shaper.

GRINDERS

- No. 1 Cincinnati Pl. Cutter Grinder.
- No. 2 Brown & S. Cutter Grinder.
- No. 3 Brown & S. Cutter Grinder.
- 8"x24" Brown & S. pl. cylindrical.
- 12"x48" Cincinnati pl. cylindrical.

GRINDERS—Continued

- 12"x48" Cincinnati univ. cylindrical.
- 10"x72" Norton plain, NEW (2).
- No. 6 Bryant internal.
- No. 20 Heald Rotary Surface.
- Pratt & Whitney Vert Surface.
- Gardner No. 4 disc (3).
- Diamond face grinder, motor drive.

LATHES

- 9"x18" Porter-Cable.
- 11"x 5' Star, hol. spdl., comp. rest.
- 16"x6" L. & S., 3-step, d. b.g., c.r., pan.
- 16"x6" Reed, 3-step cone, s. b.g., c.r.
- 16"x8" Bradf'd, 5-st. cone, b.g., c.r., t.
- 18"x8" S. & B., 3-step, d. b.g., c.r.
- 18"x13" Lehmann, 3-step, d. b.g., hol. spdl., comp. rest, quick ch. gears.
- 20"x8" Lodge & Shipley, 5 step cone, sgl. bk. grs., c. rest, qk. ch. grs.
- 20"x10" Monarch, 3-step cone, d. b.g., hol. spdl., comp. rest, q. c. taper.
- 24"x12" Reed, 4-st. cone, s. b.g., c.r.
- 28"x14" LeBlond, 3-st. c., d. b.g., c.r.

MILLING MACHINES

- No. 3 Cincinnati, pl. high power, (4).
- No. 3 Cincinnati vert. high power.
- No. 4 Becker-Brainerd vertical.
- No. 6 Becker-Brainerd vertical.
- Putnam Lincoln type, (3).

PLANERS

- 24"x24"x 6' Cincinnati, 1 head.
- 66"x66"x17' Harrisburg, 2 heads.

SAWS

- Newton cold saw.
- Klemm metal band saw.
- No. 5 Marvel hack saw.

SCREW MCHS. & TURRET LATHES

- No. 00 Brown & Sharpe automatic.
- No. 1-A Warner & S. hol. hexagon.
- No. 53 National-Acme automatic.
- No. 6 Potter & Johnston.
- 3"x33" Jones & L. flat tur., grd. hd.
- 21"x10" Gisholt, 3-jaw chuck.

SHAPERS

- 14" Gould & Eberhardt, (3).
- 20" Gould & Eberhardt, (2).
- 24" Gould & Eberhardt.

MISCELLANEOUS

- Fitchburg Lo-Swing lathes, (2).
- No. 5 American o. b. press, bk. grd.
- Production polishing machines, (2).
- H. Collier Smith circular shear, 30" throat, geared.
- No. 4-A Etna swaging machine.

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No. 79½ Bliss Straight Side Tie Rod Press,
20" or 9" stroke—will give either.

Condition, first class

For immediate shipment:

5/8-7/8" Cleveland Model A Screw Mche., Ser. No. 27360.
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No. 2-G Brown & S. Auto Screw Machine, Ser. No. 3950.
No. 1½ Valley City Universal Miller.
No. 2-B & 2-B Heavy Brown & Sharpe Millers.
No. 3 Cincinnati Plain Millers.
No. 3 Kempsmith Plain Miller.
No. 3 LeBlond Heavy Plain Miller.
6"x32" Norton Plain Grinder.
14"x72" Norton Plain Grinder.
16"x48" Landis Crank Pin Grinder.
No. 12 Natco Multiple Drill.
12"x32" Landis Universal Grinder, nearly new.
16" Stockbridge Shaper, single geared.
20" Rockford Back Geared Shaper.
24" Kelly Back Geared Crank Shaper.
30"x30"x8" Ohio Planer, heavy type.
Five Bolt Cutters, 1½" to 4" capacity.
No. 2 Waterbury Farrel Bolt Trimmer, Nearly New.
Nos. 0, 2 and 3 Mitts & Merrill Keyseaters.
80 lb. Bradley Cushion Helve Hammer.
No. 3 Barber-Colman Gear Hobber, nearly new.
36" Cincinnati Back Geared Drill & Tapping Attach.

**24" and 36" Bullard Vertical Turrets,
excellent condition.**

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NEW 3 PHASE MOTORS CHEAP. 3 H. P. \$57.50; 5 H. P. \$67.50

LATHES

9" to 13" Barnes, h. s., cp. r., new.
12"x 8" Cleveland, geared head.
14"x 8" Young.
14"x 6" Hamilton, grd. hd., motor dr.
14"x 8" Sidney, double back geared.
14"x10" Reed-Prentice.
16"x 8" Sidney, double back geared.
18"x10" American, quick change.

18"x 8" Bradford, h. s., steady rest.
20"x10" Prentice, taper.
20"x24" Prentice, with raising block.
25"x12" Sidney heavy duty.
25"x14" Schumacher & Boye.
28"x 8" Bridgeford, heavy duty.
Ames precision bench, 1" & 1" cap.
8x60" & 10x72" Fitchburg Lo-Swing.

TURRET LATHES and SCREW MACHINES

14" Tilted turret hand screw mche.
1" and 1 1/2" Mulholland.
2x24 & 3x36 J. & L., dbl. equipment.
No. 3-B Foster, 5" capacity, new.

6" Gridley auto., single spindle.
Nos. 52 and 56 National Acme.
1/2" P. & W. automatic, single spdl.
21" Gisholt.

SHAPERS

14" Niles, traveling head.
14" Steptoe, crank.
16" American, tool room.

16" & 24" Barker, b. g. crank.
16" Smith & Mills, b. g. crank.
20" Walcott, geared.

PLANERS

24"x24"x 6" Gray.
32"x32"x 8" Gray.

36"x36"x10" Cincinnati, 2 heads.
60x60x17" Betts, 2 heads.

PRESSES

Nos. 3-A & 6-A Willard inclinable.
No. 1 Toledo inclineable.
Nos. 13, 2, 2 1/2 & 4 Robinson.

Emco, bench, for radio parts.
No. 35 Niagara straight side.
Perkins, dbl. housing, wt. 4,000 lbs.

DRILLS and RADIALS

3" and 3 1/2" Silver, new, gear box.
3" & 4 1/2" Morris plain gear box.
3 1/2" Canedy-Otto plain, new.
4" Universal Radial Drill Co. plain.
Sensitive 1, 2, 3, 4 and 6 spindle.

22", 24", 26", 28" and 32", sliding hd.
20"-24" & 26" Barnes, all geared.
4-spindle Sigourney sensitive.
4-spindle Reed sensitive.
Electric drills, Thor, all sizes.

MILLING MACHINES

No. 2 Kempsmith universal.
U. S. and Whitney hand.
No. 25 Becker plain, power feed.
No. 1 B. & S. universal.
Nos. 2-A & 4-B Becker vertical.

No. 3 LeBlond, with vertical attach.
No. 2 H Brown & Sharpe plain.
Briggs type "A" high duty, 24x8 table.
No. 7 Becker Lincoln type.
Oesterlein 24x7 1/2 x18 plain.

GRINDERS

Nos. 1, 3 & 78 W. & M. surface.
No. 2 W. & P. 10x30 universal.
6"x15" Fitchburg plain.
12x36 Cincinnati universal.
12x42" & 16"x30" Landis plain.
12"x72" Brown & Sharpe plain.
36" and 66" Yates plate.

Perfection cylinder.
No. 60 Heald cylinder.
Nos. 2 & 3 Ohio universal & tool.
No. 4 Gardner 20" double disc.
No. 20 Bryant, chucking.
B. & S. No. 24 dbl. spdl., cylinder.
Capital internal, new, 2"x2".

MISCELLANEOUS

Band saw, metal, Klemm.
Band saws, Napier 4"x4", 10"x10".
Bending rolls, 7" for 1/2" plate.
Boring mill, Colburn No. 3, tur. hd.
Boring mill, 54" & 60" Colburn, 2 hds.
Brake, 10", 18-gauge metal.
Broaching machine, No. 3 LaPointe.
Cold saw, Burr, 3" capacity.
Compressors, 5x4, 8x8 and 12x10.
Drawing tables, adjust., 42"x6" top.
Gear cutter, 26" No. 3 B. & S.
Gear millers, Bilton No. 1, (5).
Hammer, 40 lb. Bradley, helve.
Hammer, 150 lb. Standard drop.

Oil separator, Springfield.
Pipe machines, 2", 4", 6" & 12".
Pumps, Gould triplex, 6 1/2"x8" & 7"x8".
Punch & shear 1/2 by 1, 10" throat.
Riveter, 1/2" Schuster.
Riveting hammers, No. 3-A h.sp. (2).
Scale, 1500 lb. Toledo, dial type.
Sceleroscopes, Shore, (2).
Shear, 5' Robinson, for 10 gauge.
Shear, No. 20 Quickwork, 30" throat.
Shear, circular, Pettingell 60".
Slotter, 18" Bement-Miles.
Tapping mche., 1/2" Rickert-Shafer.
Threading mche., W. & P. 2-spindle.

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6—10" Barnes Friction type-elevating tables, each.....\$ 15.

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1—15" Taylor & Fenn Sensitive, 2-spindle, with tapping attachment.....95.

5—19½" Barnes, 3 spindle, each.....60.

11—20" Barnes, Prentice and Superior, each.....45.

1—22½" Barnes 3 spindle, Heavy Duty, mfg. type, b. g., sliding head, p. f.....295.

1—25" Snyder Heavy Duty back geared, power feed, sliding head.....125.

HELVE HAMMERS—HELVE HAMMERS

1—80 lb. Bradley Type.....\$195.

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1—18"x8' LeBlond, Quick change, Double back geared, Turret & Steady Rest, countershaft and 2 face plates...\$295.

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1—No. 0 Baird with ¼ H. P., A. C. Mtr., Flywheel type...\$150.

1—No. 3 Stiles Straight Side, stroke 1½", Flywheel type... 175.

2—No. 4 Stiles Str. Side, stroke 1½", Flywheel type, ea... 345.

2—No. 4 American Can stroke 1½", Flywheel type, ea... 395.

1—No. 4 American Can stroke 3½", Flywheel type... 445.

1—No. 5 Howard Straight Side, stroke 1½", Flywheel type 195.

RIVETERS—RIVETERS

2—3A High Speed, each.....\$125.

3—4A High Speed, each.....175.

1—5A High Speed, with adjustable table, operated by compressed air.....\$295.

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1—Robinson 10' Toggle, b. g., weight approx. 20,000 lbs...\$850.

1—No. 1 Badger, Grd., pwr., cuts 1" angles. flats, rounds... 95.

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1—16" Kelly, back geared, with 2½ H. P., D. C. Motor...\$200.

1—24" Gould & Eberhardt, back geared.....300.

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Air Compressor, steam driven Imperial 10, 2-stage Duplex 888 cu. ft., steam ends 12"x16"; air 19"x16" & 12"x16"; 90%.
Air Compressor, steam, Ingersoll-Rand, 1000 cu. ft. single stage.
Air Compressor, steam, Chicago Pneumatic Tool, 600 ft. single stage.
Boring Mills, Barret 36", cylinder.
Boring Mills, Baush 60", 2-heads, screw cutting.
Boring Mills, Bullard 36", New Era 85%.
Boring Mills, Bullard 54", Maxi Mills. 85%.
Boring Mills, King, 2-42" & 3-52", 85 to 90%.
Bending Rolls, 12"x1" Niles Pyramid.
Bending Rolls, 16"x13" Pyramid, motor driven.
Bull Riveter, 100"—62 ton 1" capacity Pedrick & Ayer.
Butt Welder, Federal 65 KW, 3-phase 60-cycle 440-volts.
Butt Welder, Winfield 20 KVA, 3-phase 60-cycle 440-volts.
Cutting-Off Machine, Hurlbut Rogers, 4" capacity.
Hydraulic Press, Metalwood No. 20 Forcing.
Hydraulic Press, Metalwood 65-ton Straightening.
Hydraulic Press, Niles 400-ton 10"x30", M. D., Wheel Press.
Hydraulic Press, Defiance Rim No. 4, 60-ton.
Grinder, Norton plain 14"x72".
Grinder, Norton plain 10"x52".
Grinder, Norton 22"x34"x120", crankshaft.
Grinders, Landis plain 16"x48", crankshaft.
Grinders, Landis plain 12"x52".
Grinder, Bath universal Nos. 2½ & 4 B. & S. universal.
Lathes, American 24"x12", m. d. 3-s., d. b. g., 90%.
Lathes, American 20"x16" geared head, motor driven, 90%.
Lathe, Fifield 24"x24" 5-step cone.
Lathe, Lodge & Shipley 36"x18" patent head, 80%.
Lathe, Lodge & Shipley 38"x18" t. geared head, m. d., 90%.
Punch & Shear, Long & Allstatter No. 2, b. d., 48" throat.
Punch & Shear, Southwark No. 5½ Shear, b. d., 56" throat.
Punch & Shear, Hilles & Jones No. 2 Horizontal Punch.
Punch & Shear, Southwark No. 5 Punch, b. d., 48" throat.
Punch & Shear, Southwark No. 5 Punch, m. d., 48" throat.
Punch & Shear, Southwark No. 4 Punch, m. d., 48" throat.
Punch & Shear, Southwark No. 4 Punch, m. d., 36" throat.
Punch & Shear, Southwark No. 5 Punch, m. d., 60" throat.
Low-Swing Lathe, 4"x108", 90%.
Gisholt Turret Lathe, 28" swing.
J. & L. Turret Lathes, 2"x24" & 3"x36".
Libby Lathes, 6—18" swing.
Cranes, Toledo 30' span: 2—5 ton and 1—7½ ton, 3-phase 60-cycle 440-volts.
Yoke Riveter, 40 Ton, 60" throat, 8" capacity.
Yoke Riveter, Hanna Pneumatic 38½" throat, 18" gap, 8"x12" cylinder.
Yoke Riveter, Hanna Pneumatic 12" throat, 12" gap, 8"x10" cylinder.

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New & Used Nos. 2 & 3 Axle Lathes, Center Drive**

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- 1—30" Rogers & Hemphill, 1 turret hd.
- 2—36" Niles, 2 heads.
- 1—42" Baush, 2 heads.
- 1—52" Baush, 2 heads.
- 1—72" Pond, 2 heads.
- 1—10' Pond, 2 heads.
- 1—Binase, 2 3/4" Bar.
- 2—Binase, 3 1/8" Bar.
- 1—No. 2 Niles, 4" Bar.
- 1—6' Niles, 6" Bar.

CAR WHEEL BORERS

- 1—48" Niles, with Crane.
- 1—48" Putnam, with Crane.
- 1—48" Pond, with Crane.

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- 2—No. 2 Niles, center drive.
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- 1—No. 3 Putnam, center drive.
- 4—Locomotive Axle Lathes.
- 2—Comb. Axle & Jour. Lathes.
- 1—42" Niles Car Wheel Lathe.
- 4—3 1/2" x 60" Lo-Swing Lathe.

GRINDERS

- 1—No. 60 Heald Internal.
- 1—10" Landis Internal.
- 2—6" x 32" Norton Plain.
- 3—6" x 20" Fitchburg Automatic.
- 3—12" x 30" Fitchburg Plain.
- 1—12" x 30" Fitchburg Automatic.
- 2—16" x 66" Landis Plain.
- 1—26" x 96" Landis Plain.

ENGINE LATHES

- 1—14" x 6' Hendey.
- 1—16" x 6' Hendey.
- 8—14" x 6' Reed Prentice.
- 4—17" x 6' LeBlond.
- 4—19" x 8' LeBlond.
- 1—18" x 8' Oliver.
- 1—36" x 26' Putnam.
- 1—33" x 18' Bridgeford.
- 1—24" x 24' Putnam.

ENGINE LATHES—Continued.

- 1—24" x 16' Lodge & Shipley.
- 4—18" x 10' Lodge & Shipley.
- 1—30" x 13 1/6" Oliver.
- 1—50" x 20' Fifeild.
- 1—60" x 40' Fifeild.
- 1—50" x 28' Fifeild.
- 1—96" x 24' Fifeild.
- 1—96" x 36' Fifeild.
- 1—96" x 60' Fifeild.

TURRET LATHES & SCREW MCHS.

- 2—3" x 36" J. & L.
- 2—2-A Warner & Swasey.
- 1—3-A Warner & Swasey.
- 4—No. 4 Warner & Swasey.
- 4—No. 3 Stecher.
- 1—No. 1 Foster.
- 1—No. 2 Foster.
- 1—No. 2 Warner & Swasey.
- 1—No. 6 Foster.
- 1—No. 9 Foster.

MISCELLANEOUS

- 1—48" x 48" x 12' Ingersoll Mill.
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- 1—No. 1 1/2 American Plain Mill.
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- 1—No. 2-A Brown & S. Univ. Mill.
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- 2—No. 3 Kempamith Plain Mill.
- 1—No. 3 Cincinnati Plain Mill.
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1-23" Rockford four spindle.....		700.
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1-800 lb. Billings-Spencer board drop.....		700.
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1-72"x56" Niles-Bement-Pond geared head.....		\$12000.
1-36"x16" Niles-Bement-Pond geared head.....		2750.
6-25"x12 LeBlond heavy duty cone.....		950.
4-17"x8" LeBlond heavy duty cone.....		600.
MILLING MACHINES		
1-No. 5 Cincinnati plain.....		\$ 900.
1-No. 2 Cincinnati universal.....		1200.
1-No. 13 Garvin plain, new.....		375.
1-No. 3B Brown & Sharpe, plain.....		650.
PLANERS		
1-60x60x14 Powell extra heavy.....		\$3200.
1-36x36x14 Cincinnati, two heads.....		1500.
1-24x24x8 Cincinnati, one head.....		500.

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Brown & Sharpe No. 2-B heavy plain.....	\$ 950.
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LeBlond No. 4 plain.....	700.
LeBlond No. 4 plain.....	650.
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Allen 2-spindle b. b.....	\$ 150.
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22" Aurora upright.....	225.
20" Barnes 4-spd. gang.....	450.
3" Bickford radial.....	325.
5" Bickford radial.....	700.
2 1/2" Gang radial.....	325.
3" Hilbert radial.....	550.
4" Fosdick radial, sp. box.....	1000.
5" Niles universal radial.....	550.
6" Universal plain radial.....	400.

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B. & S. No. 2 surface.....	\$ 390.
B. & S. No. 11 plain.....	1100.
B. & S. No. 16 plain.....	1400.
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Cincinnati univ. cutter.....	450.
Landis 10x20 plain.....	325.
Bath universal.....	175.
12" Diamond wet tool.....	50.
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14x8 Lodge & Shipley, q. c. g., taper and chuck.....	\$ 350.
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28x14 Pratt & W. standard.....	375.
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- 4 Waterbury-Farrell triple stroke headers—Nos. 2 and 3.
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No. 7 Becker Mfg.
No. 2½ Hendey Mfg.
No. 5.C Becker Vertical.
No. 3 Brown & Sharpe Vertical S. P. D.

LATHES

11"x 5' Myers.
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14"x 6' Monarch Q. C. G.
16"x 6' Draper.
16"x 8' Bradford Q. C. G.
20"x 8' American Q. C. G.
24"x12' American Q. C. G.
36"x32' LeBlond Q. C. G. 2 carr.

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No. 55 DGG Ferracute S. S. 70 ton pres.
No. 56 DGG Ferracute S. S. 100 ton pres.
No. E-57 Ferracute S. S. 1500 ton pres.

MISCELLANEOUS

6' H. D. Plate Bending Roll, cap. ½" plate.
150 ton Caldwell Hydraulic Wheel Press.
60 ton Defiance Hydraulic Wheel Press.
Shipbuilders Angle Iron Beveling Machine.
1½" Ajax Forging Machine.
1½" Carlin Alligator Shear.
1½" G. & McK. Rod Shear.
60" L. & A. Plate Shear, 36" throat, cap. 1" plate.
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Cleveland Horizontal Rail Straightener.
Lovekin Expanding and Flanging Machine.
6' N. B. P. Radial, tapping attachment, M. D.

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24" bar LUCAS horizontal, gearbox drive.

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26" BARNES, sliding head, back gear, power feed.

5' and 6' AMERICAN radials, gearbox, tapping attachment.

3-spindle BARNES 22", back gear, power feed.

No. 15 HARRINGTON 4-spd. rail type, 1 1/4" cap.

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No. 12 BARBER-C. hobbers (2).

No. 2 ROCKFORD universal, also plain.

No. 3 CINCINNATI vertical.

No. 6 FELLOWS gear shaper.

Model "A-B" BECKER vertical.

No. 4 LeBLOND plain.

PLANERS

26"x26"x8' CINCINNATI, one head.

30"x30"x6' POND, one head.

36"x36"x10' WILSON, 2 heads, like new.

36"x30"x12' GORTON, 2 heads.

PRESSES

No. 5 LOSHBOUGH-J., o. b. i.

No. 6 geared WALSH, s. side.

The above is small part of our stock. Send for List No. 162.

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Of Machine Tools and Plant Equipment of the
RUSSEL MOTOR AXLE CO. at NO. DETROIT, MICH.

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No. 6 Fellow gear shaper. | 6", 11", 18" Gleason generators.
No. 612 Fellow gear shaper. | G. & E. gear roughers.

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$\frac{7}{8}$ " to 1 $\frac{1}{2}$ " Gridley multiple spindle automatic screw machines.
2 $\frac{1}{2}$ " to 4 $\frac{1}{2}$ " single spindle automatic screw machines.

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No. 6 LeBlond plain. | No. 5 Hendey Lincoln type.
18" Cincinnati duplex. | No. 2 Cleveland plain.
No. 3 Hendey Norton plain. | Model "A" Gooley & Edlund.

ENGINE LATHES

18"x 8' Hamilton. | 24"x12' Reed.
14"x 5' F. E. Reed. | 14"x 6' Pratt & Whitney.
20"x10' American.

TURRET LATHES

6-A Model 2 Potter & Johnston | Fitchburg Low-Sw. 3 $\frac{1}{2}$ "x60-3 $\frac{1}{2}$ "x80-8x80.
auto. turret lathe. | 1 $\frac{1}{2}$ "x8" & 3"x36" Pratt & Whitney.
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3"x36" Jones & Lamson. | 7-A Chucking machines.
24" Gisholt, 6" hole. | Fay Auto. 12" Plain and Taper.

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4' Dreeses, 20"x30" table.

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Nos. 413 & 416 Baker Brothers. | 16-spindle multiple Bausch, b. d.
No. 23 Foote-Burt 2-spdl. gang. | 24-spindle multiple Bausch.
22 $\frac{1}{2}$ " Barnes 3-spindle gang.

PRESSES

Cleveland single end punch, 12" thr. | 15-ton Lucas geared force.

GRINDERS

10A Bryant internal. | 12"x42" Landis universal.
No. 615 Fitchburg cylindrical. | No. 2-A Landis universal.
No. 2 Gould & Eberhardt cutter.

MISCELLANEOUS

Nos. 3 & 3A LaPointe broach. mch. | No. 2X Garvin auto. tapping mch.
Thompson type "C" riveter. | 6 Gear testing machines.

MOTORS

3 Phase, 60 cycle, 220 volts

75 h. p. General Electric, 900 r. p. m.	50 h. p. Wagner, 900 r. p. m.
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30 h. p. Wagner 700 r. p. m.	30 h. p. Wagner, 900 r. p. m.
30 h. p. Fairbanks-Morse, 900 r. p. m.	30 h. p. Fairbanks-Morse, 1200 r. p. m.
15 h. p. Wagner, 900 r. p. m.	10 h. p. Fairbanks-Morse, 900 r. p. m.

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Drill Presses, used 10" Winterhoff bench, 4" capacity (2) each...	35.
Drill Press, used single spindle Reed, ball bearing, like new...	175.
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Grinder, used Capital Internal Grinder.....	250.
Grinder, used No. 1 Woods Universal Tool & Cutter.....	275.
Grinder, used No. 2 Webster & Perks, 10"x30" universal cylindrical, modern tool, good as new.....	650.
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Lathe, 14"x6" used Porter Engine Lathe.....	150.
Lathe, used Woods Model C Tilted Turret, plain head, power feed to turret, with 10" Barker wrenchless chuck.....	375.
Lathe, used 13"x8" Willard, double back gear.....	225.
Lathe, new 9"x24" Sundstrand Mfg., gear drive.....	585.
Miller, new No. 1 Rockford Plain Miller.....	950.
Miller, new No. 2 Plain, constant sp., hi-pwr., with all auto. fds.....	1850.
Millers, used U. S. Hand Millers, good condition (2) each.....	340.
Miller, used No. 5 Becker Brainard, b. g., 14"x42" table.....	375.
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Tapping Machine, used No. 2 Garvin Auto., good condition.....	250.

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- Rock River Single End 1-3/16"x1", 48" throat.
- No. 8 Whiting, single end, 1-3/16"x1", 48" throat.

PRESSES

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- No. 3 Rockford o. b. i., plain.
- No. 3 Consolidated o. b. i., geared, 2 $\frac{1}{2}$ " stroke.
- No. 4 Rockford o. b. i., grd.
- No. 37 $\frac{1}{2}$ Bliss str. sided, pl.
- No. 55 Consolidated plain straight sided, 4" stroke.
- No. 512 Niagara str. sided, with auto. friction clutch.

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Change Cone Drive.
30" swing x 14' High Duty Lathe,
Quick Change.
28" swg. x 14' bed N.B.P. Motor-dr.
24" swing x 14' bed Reed-Prentice.
42" Baush Boring Mill, 2 heads.
24" Stroke, Niles-Bement-P. Slotter.
4' Arm Radial, Carlton.
No. 2 Cincinnati Vert. Milling Mch.

42" Baush Boring Mill, 2 hds.
50" Bridgeport Boring Mill, 2 hds.
24" Str., N.B.P. Slotter, mtr.-dr.
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No. 3 Cincinnati Plain Miller.
8x30 Modern Grinder.
No. 3 Baker Keyseater.
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20" Smith & Mills Shaper.
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These Tools still set up in
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- No. 55 Four Spindle Acme.

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- No. 14 Natco.
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- 4" American Sens. Radial.
- 4" Bickford Radial.

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- No. 28 Ohio Plain.
- 28" Cincinnati Plain.

MISCELLANEOUS

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- 24"x14" Davis Lathe.
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- 9x9 Peerless Power Saw.
- 4" Higley Cold Saw.
- 20" Steptoe Shaper.
- 24x24x8" Powell Planer.

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- 5-20" x 12' American.
- 5-20" x 16' American.
- 20-21" x 10' LeBlond.
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- 3-24" x 12' Providence.
- 1-24" x 15' Chard.
- 1-24" x 16' Lodge & Shipley.
- 1-24" x 24' Lodge & S. selective hd.
- 7-25" x 10' LeBlond.
- 10-25" x 12' LeBlond.
- 24-26" x 10' Canada.
- 10-26" x 18' Bridgeford.
- 19-32" x 12' Pittsburgh.
- 4-36" x 30' Pittsburgh Geared Hd.
- 3-36" x 37' Niles Bement Pond.
- 1-51" x 20' LeBlond.
- 1-56"-64" x 18' Johnston.
- 1-60" x 18' Johnston.

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- 5-No. 2 Kempsmith.
- 3-No. 2 Rockford.
- 2-No. 29 Ohio.
- 7-No. 2 B Hvy. Brown & Sharpe.
- 4-No. 3 Kempsmith.
- 9-No. 3 B Hvy. Brown & Sharpe.
- 2-No. 4 Cincinnati.
- 2-No. 4 LeBlond.
- 1-No. 5 Cincinnati, Hi-power.
- 3-No. 4 B Becker.
- 2-No. 3 Cincinnati Vertical.
- 2-No. 4 Cincinnati Vertical.
- 4-No. 5 C Becker.
- 3-No. 6 Becker.

BORING MILLS—Vertical

- 3-24" Bullard "New Era."
- 1-44" Niles Bement Pond.

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- 1-54" Bullard.
- 1-43" Colburn.
- 2-62" King.
- 3-72" Cincinnati.

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- 1-No. 31 Lucas.
- 3-3" Foote-Burt.
- 1-No. 3 Rochester Floor Borer.

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- 1-No. 121 Baker.
- 1-No. 24 Foote-Burt.
- 1-No. 25 Foote-Burt.
- 6-No. 23 2-appl. Henry & Wright.
- 1-3-spindle Henry & Wright.
- 4-6 spindle Allen.

PLANERS

- 1-24" x 24" x 6' American.
- 1-24" x 24" x 6' Liberty.
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- 1-36" x 36" x 12' Woodward & P.
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- 1-72" x 56" x 36" Cincinnati.

GRINDERS

- 3-6" x 18" Landis.
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1—3½' Universal Radial Drill.....	250.
2—No. 4 Quint 5-hole Turret Head Drills.....	each 175.
3—No. 60 Heald Cylinder Grinders.....	each 300.
1—No. 1½ Cincinnati Universal Miller.....	150.
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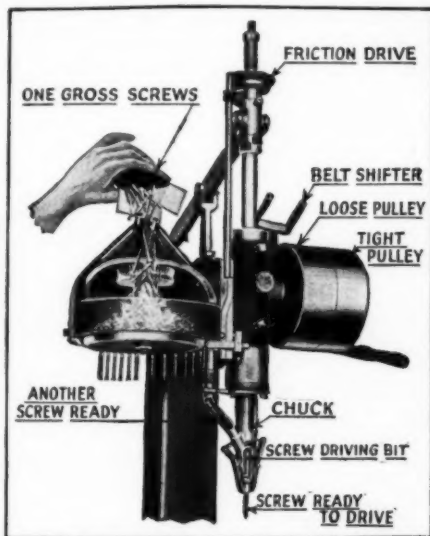
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Automatics

New Britain Machine Co., New Britain, Conn.

Balancing Ways

Anderson Bros. Mfg. Co., Rockford, Ill.
Bowers Co., N. P., South Bend, Ind.

Balls, Bearing and Burnishing

Abbott Ball Co., Hartford, Conn.

Band Saw Machines, for Metal

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Porter-Cable Machine Co., Syracuse, N. Y.

Barrels, Tumbling

Abbott Ball Co., Hartford, Conn.
Scully-Jones & Co., 2012 W. 13th, Chicago

Belt Shifters

Artisan Manufacturing Co., Cincinnati, O.

Bench Legs, Steel

Angle Steel Stool Co., Plainwell, Mich.
New Britain Mch. Co., New Britain, Conn.

Bending Machines, Hand and Power

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Hendley & Whittemore Co., Detroit, Wis.
Leuthwaite Mch. Co., F. H. 417 E. 31st., N. Y.
Lourie Mfg. Co., Springfield, Ill.
Pedrick Tool & Machine Co., Philadelphia

Boring Bars

Pedrick Tool & Machine Co., Philadelphia

Boring Bars, Cylinder

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Boring Machines, Horizontal

Avey Drilling Machine Co., Cincinnati
Morris Machine Tool Co., Cincinnati, O.
Pedrick Tool & Machine Co., Philadelphia
Rockford Drilling Machine Co., Rockford, Ill.

Cabinets, Tool

Angle Steel Stool Co., Plainwell, Mich.

Burnishing Equipment, Ball

Abbott Ball Co., Elmwood, Conn.

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Hamilton Caster & Mfg. Co., Hamilton, Ohio

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Whitney Mfg. Co., Hartford, Conn.

Chucking Machines

New Britain Mch. Co., New Britain, Conn.

Chucks, Collet

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Hardinge Bros., Inc., 1770 Berteau Ave., Chicago

Chucks, Drill

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Jacobs Mfg. Co., Hartford, Conn.
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Titan Tool Co., Erie, Pa.
Westcott Chuck Co., Oneida, N. Y.

Chucks, Drill and Tap

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Peter Bros. Mfg. Co., Algonquin, Ill.
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Chucks, Keyway Cutting

Scully-Jones & Co., Ry. Exch. Bldg., Chicago

Chucks, Lathe

Westcott Chuck Co., Oneida, N. Y.

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Dies, Self-Opening Adjustable
Rickert-Shafer Co., Erie, Pa.

Drill Racks
Peerless Machine Co., Racine, Wis.

Drilling Machine Heads, Multiple
National Automatic Tool Co., Richmond, Ind.
United States Drill Head Co., Cincinnati

Drilling Machines, Bench
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Burke Machine Tool Co., Conneaut, Ohio
Reed Co., Francis, Worcester, Mass.
Rockford Drilling Machine Co., Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

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Rockford Drilling Machine Co., Rockford, Ill.

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National Automatic Tool Co., Richmond, Ind.
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Rockford Drilling Machine Co., Rockford, Ill.
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Jackson Blvd., Chicago
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N.A., 6001 N. Lincoln St., Chgo
Wisconsin Electric Co., Racine, Wis.

Drilling Machines, Post
Mueller Machine Tool Co., Cincinnati

Drilling Machines, Radial
Morris Machine Tool Co., Cincinnati, O.
Mueller Machine Tool Co., Cincinnati
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Sensitive
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Burke Machine Tool Co., Conneaut, Ohio
Leland-Gifford Co., Worcester, Mass.
Reed Co., Francis, Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.
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Leland-Gifford Co., Worcester, Mass.
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Gauges, Thread
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Grinding Machines, Face
Taylor & Fenn Co., Hartford, Conn.

Classified Finding Index

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Thompson Grinder Co., Springfield, Ohio
Whitney & Son, Haxter D., Winchendon, Mass.
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Strand Co., N. A., 5001 N. Lincoln St., Chgo
Wisconsin Electric Co., Racine, Wis.

Grinding Machines, Snagging

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.

Grinding Machines, Surface

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
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Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Tap

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Mich.

Grinding Machines, Tool

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Hack Saw Machines

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Thomas Elevator Co., 31 S. Hoys Ave.,
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Canton Foundry & Machine Co., Canton, Ohio

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Hardinge Bros., Inc., 1770 Berteau Ave.,
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Morris Machine Tool Co., Cincinnati, O.
Mueller Machine Tool Co., Cincinnati
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Barker Co., Wm., Covington, Ky.

Lathes, Gap

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Lathes, Short Bed

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Lathes, Turret

Monarch Machine Tool Co., Sidney, O.

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Mandrels, Solid

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 McDonald Machinery Co., St. Louis
 Marr-Galbreath Mch'y. Co., Pittsburgh, Pa.
 Marshall & Hueschart Machinery Co., 17 S.
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 Osborne & Sexton Machy. Co., Columbus, O.
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 Pittsburgh Model Engine Co., Pittsburgh, Pa.
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 Borgeson Mfg. Co., Inc., Torrington, Conn.
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 National Automatic Tool Co., Richmond, Ind.

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Powell Co., Wm., Cincinnati

Vises, Drilling Machine

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 Armstrong Bros. Tool Co., 808 N. Francisco
 Av., Chicago
 Armstrong Mfg. Co., Portland, Oregon
 Thomas Elevator Co., 31 S. Hoys Ave.,
 Chicago

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 Parker Co., Charles, Meriden, Conn.

Vises, Shaper

Columbia Machine Tool Co., Hamilton, Ohio

Wood Working Machinery

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 New Britain Machine Co., New Britain, Conn.
 Porter-Cable Machine Co., Syracuse, N. Y.
 Towsley Mfg. Co., John T., Cincinnati
 Whitney & Son, Baxter D., Winchendon, Mass.

The La Salle No. 2 Speeds Automatic Surface Grinding

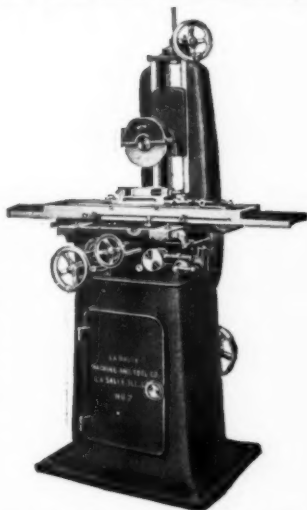
GRINDS WORK

20" Long
6" Wide
10" High

WITH A

7" Wheel

Table travels automatically in both directions. A hand-power table movement can be operated without changing automatic feed. Also has automatic cross feed in either direction with automatic stop. Wheel truing device is built integral with machine.



EXPERIENCE has demonstrated the superiority of this type of machine for grinding dies, punches and a wide range of small tools, as well as for many manufacturing jobs, such as finishing bright and true surfaces, and parts of tools and instruments.

THE IMPROVED DESIGN of the La Salle No. 2, combining great rigidity, perfect alignment and exceptional ease of manipulation, places it in the first class as an ideal tool for work within its range. Net weight, 1,500 lbs. Arranged for wet grinding if desired, also for motor drive.

La Salle Tool Company

La Salle, Illinois, U. S. A.

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Greater precision, wider range and increased production have been attained by replacing the ram stroke with a speedy table stroke

The machine is the—

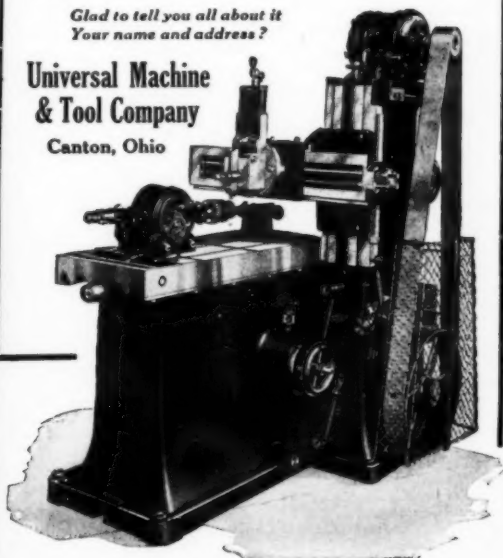
26" Universal Shaper

Its speed, accuracy, capacity for heavy cuts, and its range of usefulness up to and including the work of a small openside planer, place the Universal in a shaper class of its own.

*Glad to tell you all about it
Your name and address?*

**Universal Machine
& Tool Company**

Canton, Ohio



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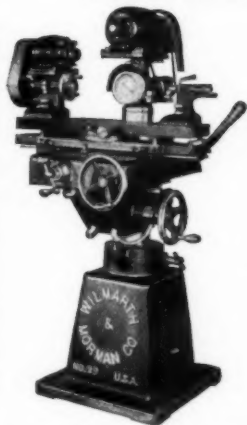
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—clears the deck for action!

**This Modern Motor Driven Grinder Eliminates
All Overhead Belts, Superstructure and Frame
Above or Around the Machine**



**W. & M.
No. 99
Universal
Cutter,
Tool and
Reamer
Grinder**

Swings work $10\frac{3}{8}$ "
diam. x 20" long.

Working Surface of
Table, $5\frac{1}{2}$ " x 32".

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FOR CONVENIENCE, dependable accuracy and all round reliability the No. 99 acknowledges no superior. It comes self-contained, all ready to connect up with a lighting or power circuit, so you can turn the switch and go ahead with practically any grinding job.

All electric controls are directly in front of operator, on knee below the table. Head or table can be swung 360 degrees. All attachments are accurately made and easy to operate. It saves 50% in power, and 60% in floor space.

Let us mail you full details and the interesting price

Wilmarth & Morman Co.

Manufacturers of Precision Grinding Machinery Since 1900

1185 Monroe Ave., N. W., Grand Rapids, Mich.

We also manufacture Surface Grinders and the NEW YANKEE Drill Grinders

"New Britain" **Shop Furniture**

Bench Legs

Pressed steel; better benches at lower cost.

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All steel, or wood back, bottom and front.

Work Stands

All steel, with two or three trays.

Portable Vise Stands

Work benches and tool cabinets on wheels.

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Adjust height of bench hand to his work.

Bar Stock Racks

Keep bar stock neatly piled and assorted.

Tote Boxes

Stacking and Nesting; electrically welded.

And Others

All most carefully designed, so that each item of "New Britain" Shop Furniture will give the utmost of service, facilitate production, and save time and labor far beyond what is possible with the usual make-shift devices.

Investigation costs nothing; what do you need?

The New Britain Machine Company

**"Shop Furniture
Originators"**



**New Britain,
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